Can Alliance Networks Work?
Examining the Evolution & Impacts of Alliance Portfolios In Healthcare.

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D21795-99-09/600196019

Submitted for the degree of Doctor of Business Administration

Heriot-Watt University
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April, 2013

ABSTRACT

As the global competitive environment becomes increasingly complex and volatile, organisations look to networks to complement skills, resources, agility and capabilities. This research program aims to achieve a better understanding in the role of alliance portfolios in the development of dynamic capabilities of innovation and commercialisation. Through a case study approach examining the network of The Michener Institute for Applied Health Sciences, this research program uses a grounded-theory methodology to construct a conceptual framework, which is generalised to other healthcare firms', alliance portfolios and potentially to other industries. The central assertion of this research program is that within complex and high-velocity environments, the character of a firms' alliance portfolio facilitates the extent to which dynamic capabilities are created that result in new market opportunities, ultimately leading to competitive advantage. The results suggest that alliance portfolios develop dynamic capabilities (specifically, innovation and commercialisation) when comprised of individual alliance relationships that establish variables of trust; strategic fit of resources and vision; secure partners that operate within the same industrial sphere and/or core business as the hub-firm; and a personal commitment to the alliance. Further, those individual alliance relationships that experience variables including lofty expectations; fuzzy decision making processes; lack/loss of strategic focus; differences in corporate cultures; and poor transference/application of dynamic capabilities across different industries were unsuccessful in the development of dynamic capabilities. Initial results also suggest that the cumulative experience of the dedicated alliance function (Kale, Dyer, and Singh; 2002), and the resulting dynamic capabilities established therein, have the ability to transition (Arndt, 2008) to the alliance portfolio (Wassmer, 2010). The alliance portfolio not only acts as an egocentric catchment of an organisation's respective alliances (Baum, 2000), but can also acts as a cumulative set of dynamic capabilities, resources, and opportunities.

Key Words: Alliance; Alliances; Alliance Function; Alliance Portfolio; Dynamic Capabilities; Innovation; Commercialisation; Case Study

DEDICATION & ACKNOWLEDGEMENTS

It is always a challenge to truly thank the many people who have assisted in the process of completing this dissertation. There are many people at Michener, both past and present who have impacted me during this journey through many casual and focused conversations; thank-you everyone for your support and encouragement.

To my primary supervisor, Dr. Robert MacIntosh, please accept my sincere appreciation for your expertise, insights, humour, leadership and mentorship throughout this entire research process.

A special thanks to my direct colleagues (at Michener; “Org A”; and “Org B”) for your unconditional support and involvement throughout this entire research program.

To my wife Nicole, and my two beautiful children, Jack and Cayla, you are, and always will be my source of inspiration and purpose in my life. Thank-you for your constant love and encouragement.

Cheers,

Bradley Donald Niblett

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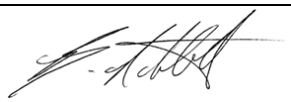
Signature of Candidate*:*		Date:	APRIL 24, 2013

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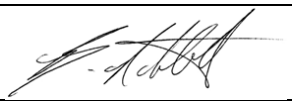
Signature of Individual Submitting:	
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TABLE OF CONTENTS

GLOSSARY OF TERMS

Researchers use many different terms in different ways, creating potential confusion about intended meanings. For clarity and the purposes of this study, the following key terms shall have the following meanings:

Alliance Portfolios: Wassmer (2010) defines alliance portfolios "as a focal firm's past as well as ongoing strategic alliances", with Baum (2000) defining as "a focal firm's egocentric alliance network (p. 144 and 143, respectively)."

Commercialisation of Knowledge Assets: Lichtenthaler (2005) states "External knowledge commercialisation (exploitation) describes an organisation's deliberate commercialising of knowledge assets to another independent organisation involving a contractual obligation for compensation in monetary or non-monetary terms (p. 233).

Core Competencies: Prahalad and Hamel (1990) define core competencies as "the collective learning in the organisation, especially how to coordinate diverse production skills and integrate multiple streams of technologies (p. 82)"; are "also about the organisation of work and the delivery of value (p. 83)"; "are the engine of new business development (p. 83)"; "are the glue that binds existing businesses (p. 83)"; and finally that "core competence does not diminish with use (p. 83)", as they "are enhanced as they are applied and shared (p. 83)." [1]

Development of core competencies: depending on the competency of focus, intended to reflect specific or complete phase(s) of the competency development process, including identification, creation, development, cultivation, advancement and retrenchment.

Dynamic Capabilities: Baretto (2010) defines dynamic capabilities as "the firm's potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-oriented decisions, and to change its resource base (p. 271)."

[1] Prahalad and Hamel (1990) propose that core competencies are identified by three requirements, including i) providing access to a wide variety of markets; ii) provide a significant contribution to the customer value proposition; and iii) the identification and duplication should be difficult for rivals to copy.

Fungibility: Defined by Merriam-Webster Dictionary as "being of such a nature that one part or quantity may be replaced by another equal part or quantity in the satisfaction of an obligation." Applied to resource-based view, defined as "to what extent are resources valuable to other applications?"

Grounded Theory: Corbin and Strauss (2008) define grounded theory as "a specific methodology developed by Glaser and Strauss (1967) for the purpose of building theory from data (p. 1)."

Health Care Firm's: In the context of this research program, is intended to reflect clinical (hospital) partners; OEM's, or original equipment manufacture firm's associated with the applied health sciences; academic institutions offering healthcare education; non-profit healthcare advocacy and education organisations; other for-profit firm specialising in healthcare education (e.g. curriculum development; simulation technologies; etc.); and where appropriate, government partners and funders (e.g. Ministry of Health and Long-Term Care).

Innovation: Kline and Rosenberg (1985) propose that "we might think of innovation as a new product, but it may also be i) a new process of production; ii) the substitution of a cheaper material, newly developed for a given task, in an essentially unaltered product; iii) the reorganisation of production, internal functions, or distribution arrangements leading to an increased efficiency, better support for a given product, or lower costs; or iv) an improvement in instruments or methods of doing innovation (p. 279)."

Interorganisational Networks: The literature base provides an extraordinary degree of varying definitions. In the context of this research program, 'interorganisational network' refers to the complement of formal and informal alliance partner organisations that a hub-organisation interfaces with formally or informally develop dynamic capability in pursuit of competitive advantage (Provan, Fish, and Sydow, 2007).

Network: Brass, Galaskiewicz, Greve and Tsai (2004) define networks as "a set of nodes and the set of ties representing some relationship, or lack of relationship, between nodes (p. 795)."

Research & Development: Snow, C. C., Fjeldstad, O. D., Lettl, C., & Miles, R. E. (2011) define the essence of research and development to be "the generation, selection and development of ideas (p. 11)."

Resources: Maijoor and Witteloostuijn (1996) define resources as "those tangible/intangible assets that are tied semi-permanently to the firm (p. 550)".

Resource Schema: Danneels (2011) defines resource schema as the mental model that managers hold of their firm's resources and contains answers to questions such as 'what are our resources?' and 'what are the potential applications of our resources (p. 21)?'

Skunkworks: Traditionally characterised as an approach to radical innovation through team-driven approach, often operating with limited organisational bureaucracy/structures (Fosfuri & Ronde, 2009).

Whole Network/ Interorganisational Network: While Kilduff and Tsai (2003) define whole networks as "the complete set of ties among all actors in the network", Provan et. al. (2007) indicates that "a whole network is viewed here as a group of three or more organisations connected in ways that facilitate achievement of a common goal (p. 482)".

CHAPTER 1 - INTRODUCTION

The central assertion of this research program is that within complex and high-velocity environments, the character of a firm's alliance portfolio facilitates the extent to which dynamic capabilities are created that result in new market opportunities, ultimately leading to competitive advantage.

The intersection of fields reflected in this research program include the resource based view (Barney, 1991, 2001; Priem & Butler, 2001); dynamic capabilities (Teece & Shuen, 1997; Winter, 2003; Danneels, 2011); networks (Provan & Milward, 1995; Provan, Fish & Sydow, 2007; Wassmer, 2010); and innovation and commercialisation within an alliance portfolio (Aarikka-Stenroos & Sandberg, 2007, 2009; Moller & Svahn, 2003, 2005, 2009). This research program aims to leverage and integrate these research fields to explore and examine the role of the alliance portfolio in the development of dynamic capabilities of innovation and commercialisation, the perceived costs and benefits of this process, and how the alliance portfolio evolves over time to meet the strategic goals of the hub-firm.

The expected outcomes of the study will provide healthcare organisations and respective managers a greater appreciation for the identity of the alliance portfolio within an organisation; insights and clarifications as to how managers view, recognise and potentially leverage (dynamic) capabilities; a greater appreciation for the variables associated with a successful/unsuccessful instance of commercialisation/innovation within the context of an alliance portfolio; clarification to the costs and benefits associated with the management of an organisations alliance portfolio (Wassmer, 2010); and the role of the alliance function (Kale, Dyer and Singh, 2002) in the establishment, management and cultivation an organisational alliance portfolio.

CHAPTER 2 - STRATEGIC MANAGEMENT

2.1 AN INTRODUCTION OF CORPORATE STRATEGY & STRATEGIC MANAGEMENT

Scott (2000) defines the origin of "strategy" from the Greek phrase "*strategio*, meaning a general, *stratos* meaning an army, and *agein* meaning to lead (p. 1/15)." The phrase "strategic management" can reflect a number of different definitions and interpretations. Lamb (1984) defines strategic management as:

> "…an ongoing process that evaluates and controls the business and the industries in which the company is involved; assesses its competitors and sets goals and strategies to meet all existing and potential competitors; and then reassesses each strategy annually or quarterly [i.e. regularly] to determine how it has been implemented and whether it has succeeded or needs replacement by a new strategy to meet changed circumstances, new technology, new competitors, a new economic environment., or a new social, financial, or political environment."

In reviewing the transition from corporate strategy to strategic management, Grant (2005) outlines a static environment in the 1950s/1960s, whereby large, central bureaucratic departments were created in large organisations to assess the external environment, in an attempt to copy/duplicate those strategies most successfully employed by competitors. Ansoff (1980) summarises the development of the strategic management field (systems, methodologies) over a 40-year period beginning in the late 1940s, including top-down "control, long-range planning, strategic planning, strategic management, strategic issue management and surprise management (p. 132)." The introduction of the "strategic issue management system", which has become more commonly referred to as the strength, weakness, opportunities and threats (or SWOT) framework, was revolutionary with focus on action towards specific issues, as determined by a variety of stakeholders. This framework would become highly influential in strategy development and in enterprise risk management. As markets became increasingly complex, decreased regulation and global competition increased, there was a marked transition to strategic management approaches where the specifics and attributes of the firm (rather than the characteristics of a respective industry) were

assessed to secure a sustainable competitive advantage (Floyd, 2000). This perspective has been led by Porter (1985) who has advocated that firms can choose, and develop a specific approach to the constructs of the industry through their respective value chains to secure uniqueness, either through a cost leadership, differentiation, or niche approach. The choice of strategic positioning is aligned to the constructs and attributes of the external industry defined through the application of Porter's 5-Forces Model.

While the process of strategic management varies, there is a general hierarchy including mission, which outlines why an organisation exists; vision, which defines where an organisation wants to go; corporate strategy and objectives, which identify what needs to be completed; and departmental/personal objectives which outline what activities specific departments/individuals are responsible for completing (Niven, 2002). To inform the above decisions, strategic management facilitates a process of analysis, which often includes a review of the political, economic, sociological, technological, and international (PESTI) components of the external environment (Ansoff, 1980). Strategic analysis is also applied to the industry environment (Ansoff, 1980), which often includes a competitive assessment via Porter's 5-Forces model (analysis of buyer power; supplier power; threat of new entrants; threat of substitutes; and overall competitive rivalry) (Porter, 1980). Once the strategic analysis and overall strategic choices have been made, the final (and perhaps most critical) processes within strategic management include the implementation and ongoing monitoring, evaluation and correction of strategy (Ansoff, 1980).

Throughout this modern period between 1940-1985, strategy and the application thereof was largely thought of as the role of corporate leadership, or a 'command and conquer' perspective. More contemporary perspectives have focused on the role of middle management in the development, implementation and renewal of strategy (Floyd and Wooldridge, 2000), as well as the recognition and impact of installing strategy development processes within the public sector (Bryson, 1988). Floyd et. al. (2000) further elaborate this perspective in positing "that the information flows and patterns of social influence that transform ideas and initiatives into new capabilities have their nexus at the middle levels of the management hierarchy …", and that "middle management is 'where the action is' in a capability-based view of strategy (p. xvi)." This perspective interfaces successfully with that of complexity theory, insofar as those with the densest social networks/contacts, those closest to the 'strategic action', and

those charged with implementing such strategies and securing results are most appropriate to influence overall strategic intent. An additional perspective is offered by MacIntosh and MacLean (1999) who in their examination of strategy research, present a clear distinction between the content and process approaches, whereby "if one likens the issue to a journey, the content approach has a clear destination but the means of transport is indeterminate whereas with the process approach the transport is known and in motion, but the journey is something of a "mystery tour (p. 300)."

Due to the significant complexity of the macro and industrial environments, organisations must identify, cultivate and grow their respective capabilities, and as is often the case, partner and align with other profit/non-profit organisations to complement their respective value chain. This most recent era of the 2010s is witnessing a transition from corporate social responsibility (CSR) to corporate shared value (CSV) (Porter and Kramer, 2011). Alliances and networks are evolving from corporate "hub" centric leadership models to more distributed community network models, as illustrated via the iPhone© Apps development network. Johnson (2010) submits that the within the current era the focus from a defined corporate value chain will transition to a "customer value proposition (CVP)", where CVP is defined as a "product, service, or combination thereof that helps customers do more effectively, conveniently, or affordably a job that they've been trying to do (p. 24). In reflecting on an application of this business model with a company called "Threadless", Karim Lakhani commented (Chafkin 2008):

> "The customers end up playing a critical role across all its operations: idea generation, marketing, sales forecasting. All that has been distributed."

The strategic management approach has moved beyond a stable, linear assessment of external industrial characteristics and/or internal resource allotments/idiosyncrasies. As illustrated above, within the modern era the process of strategic management reflects a fluid, rich and evolving interplay between internal stakeholders; external suppliers, competitors, non-government organisations and government agencies; and with the firm's customer base itself. This rich, asymmetrical interplay between communities, interests and insights provides the environment for relevant capability development, new industry birth, and ultimately sustainable competitive advantage to the hub/focal-firm.

2.2 STRATEGIC MANAGEMENT & COMPETITIVE ADVANTAGE

Teece, Pisano and Shuen (1997) suggest "the fundamental question in the field of strategic management is how firms achieve and sustain competitive advantage (p. 590)." Several alternative perspectives have been developed to explore the essence of sustainable competitive advantage, including leadership, industry structure analysis (Porter, 1980), and dynamic capabilities (Teece et. al., 1997; Eisenhardt and Martin, 2000). Where Porter (1980) focuses "strategic positioning" of a firm within a set of external industry constructs, the resource based view, or RBV, focuses on the specific internal capabilities of a respective firm as the source of sustainable competitive advantage (Grant 2005). As Grant (2005) describes, the focus on distinctive capabilities resulted in large-scale divestment of those divisions, processes and activities not directly aligned to an organisations "core business." This divestment and resulting strategic focus increased the reliance on alliances, partnerships, joint-ventures and networks as increased cooperation via networks was established.

Given the experience, impact and insights of the most recent global recession, the demand for new perspectives within the field of strategic management have been considerable. The very essence of strategic management, the pursuit of a sustainable competitive advantage, has been questioned by academic scholars and management practitioners alike, including the social costs, impacts and results of such intents (Porter and Kramer, 2011). In examining the general theme of capitalism, and by extension strategic management theory, Porter and Kramer (2011) suggest that the fundamental trust between business leadership and society has been broken, insofar as the pursuit of value (and by extension profit) has in some circumstances created negative externalities that have largely been borne by society. Porter and Kramer (2011) recommend focusing on "corporate shared value" (CSV) rather than "corporate social responsibility" (CSR), which is argued has been largely peripheral to the core intent of most businesses. In transitioning from CSR to CSV, Porter and Kramer (2011) suggest that some core requirements include "…the ability to collaborate across profit/non-profit boundaries." (p. 64); that "shared value, which involves creating economic value in a way that also creates value for society by addressing its needs and challenges (p. 64)"; and finally that the areas for largest opportunities for shared value cultivation include "…health, safety, environmental performance, and employee retention and capability (p. 69)." Drawing on this observation, this study aims to understand how a hub/focal-firm can achieve

corporate shared value through the engagement of a dynamic alliance portfolio. The study is set in the healthcare sector since this sector features such collaborations such as firms seeking to use diverse technologies to address complex healthcare needs. The differences and distinctions between corporate social responsibility (CSR) and corporate shared value (CSV) are important to clarify. The result of CSR has been limited at best, with key stakeholders unconvinced with the overall impact; and with many shareholders displeased at the perception that corporations would be involved in activities (and associated costs) that could be deemed outside the "core business" of the organisation (Porter and Kramer, 2011). The long-time economic argument against CSR has been that it is the firm's intent to maximise profits and maximise the associated dividend to shareholders. Thus, it is the decision of the individual shareholder to decide what social causes to support, and not the decision of the organisation. With CSV, Porter and Kramer (2011) argue that in order to maximise profits and therefore maximise the return to shareholders is to focus on corporate "policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the community in which it operates (p. 66)." This contemporary narrative illustrates the importance not only of dynamic capabilities, but by extension the ability of interorganisational relationships (and specifically alliance portfolios) to share, cultivate and build dynamic capability to (profitably) advance solutions to societies greatest challenges and needs. With increased emphasis and engagement of collaborative relationships, the field of strategic management requires a better understanding of how such alliance portfolios contribute towards establishing a competitive advantage within hub/focal-firms.

2.3 STRATEGIC MANAGEMENT, COMPETITIVE ADVANTAGE & NETWORKS

While Porter and Kramer (2011) describe CSV as "a more sophisticated form of capitalism", the concept of CSV could also be viewed as a specific organisational business model, where networks of customers, competitors government agencies and research institutions collaborate in pursuit of CSV (Porter and Kramer, 2011). Osterwalder and Pigneur (2010) define a business model as "the rationale of how an organisation creates, delivers, and captures value (p. 14)." Osterwalder and Pigneur (2010) suggest that a business model can be defined through nine building blocks (including customer segments; value propositions; distribution channels; customer relationships; revenue streams; key resources; key activities; key partnerships; and cost

structure) illustrating how an organisation intends to secure economic rents, or profit. If Porter and Kramer (2011) outline the vision of what is to be achieved via CSV, Osterwalder and Pigneur (2010) provide a convincing road map of how and what to accomplish within a chosen strategic intent.

CHAPTER 3 - RESOURCE BASED VIEW (RBV) PERSPECTIVE

3.1 RBV & COMPETITIVE ADVANTAGE

There is an established history of reflecting on the characteristics of a firm's resources and ability to apply such resources to an "image" of the industry with the purpose of securing a sustainable competitive advantage, growth and profit (Penrose, 1959). Wernerfelt (1984) provides a key observation in positing, "for the firm, resources and products are two sides of the same coin (p. 171)." This observation establishes that from an RBV perspective, the core relationship between resources and the ability of a firm to create one or more products. By extension, the leveraging of a firm's resources to create products reflects the capability of innovation and commercialisation, a central focus of this research program. In considering the organisational "resource position", both at a point, and over time (dynamic), specific market (product) opportunities can be designed/developed to create "barriers", ultimately outlined and managed through a "resource-market/product matrix" (Wernerfelt, 1984). While the resource-market/product matrix provides an excellent portfolio framework, it provides limited insights as to how specific resource idiosyncrasies/complements are acquired (outside of mergers/acquisitions) and/or built.

In aiming to define the source and sustainability of competitive advantage, Barney (1991) posits complementing the traditional industrial analysis with a comprehensive assessment and cultivation of those capabilities in which a firm is distinct. More specifically, Barney (1991) suggests balancing the external (industrial) threats and opportunities with a deeper consideration of internal capabilities, recognised as the strengths and weaknesses components of the traditional SWOT analysis framework. In a fundamental shift, perhaps recognising the philosophical difference between traditional economic theory and strategic management, Barney (1991) recommends that rather than perceiving resources as homogeneous and somewhat "fixed" within a firm, strategic resources should be considered "heterogeneous…and that these resources may not be perfectly mobile across firms, and thus heterogeneity can be long lasting (p. 101)." In aligning the above conditions of resource heterogeneity and immobility in sustaining a competitive advantage, Barney (1991) posits, "a competitive advantage is sustained only if it continues to exist after efforts to duplicate that advantage have ceased (p. 102)." In extending this framework, Barney (1991) identifies the attributes

required for considering a strategic resource contributing towards a sustainable competitive advantage, including that a resource must be "valuable", "rare", "imperfectly imitable", and "no readily available substitute" resources", or "VRIN" (p. 105,106). The resulting linear framework assumes the constructs firm resource heterogeneity and immobility, identifies those resources that contribute towards a sustainable competitive advantage through the "VRIN" attributes.

Priem and Butler (2001) largely criticise the RBV perspective, and specifically but not exclusively Barney (1991), in suggesting that the RBV perspective:

i) fails to meet the qualifications of what is required to be deemed a theory (specifically the ability of the RBV perspective to be presented/positioned as "if/then statements"; "falsifiability"(p. 27));
ii) lacks clear definitions related to the core terms of resource, competitive advantage, sustainable; presents equally simplistic assumptions through the "immobility" and "heterogeneous" framework conditions;
iii) that the generalisability of the framework is too wide;
iv) that the framework avoids defining "how" to apply to specific strategists;
v) and finally that the literature development and subsequent empirical advancement had been largely "static".

In response to this criticism, Barney (2001) clarified that "the ability to restate a theory in ways that make it tautological provides no insights about the empirical testability of the theory whatsoever (p. 42)." Further, Barney (2001) provides insights to the degree of which each strategic resource component (value; rarity; "imperfectly imitable", and no readily available "substitute" resources) can explicitly be parameterised to support empirical testing. In addressing the generalisability of the RBV perspective, Barney (2001) suggests that given "the value of particular resources depends on the specific market context in which they are applied (p. 51)", strategists can "use resource-based logic to ensure that they nurture and maintain those resources that are sources of a firm's current strategic advantages (p. 49)." In regards to the challenges in defining critical RBV terms such as "competitive advantage", Barney (2001) strikes a conciliatory balance between perspectives and agrees that ambiguity stifles RBV development, thus stating that:

> "rather than refer to the definitionally ambiguous "competitive advantage," researchers should specify exactly what it is they are trying to explain: above-industry-average profits (as in Priem & Butler), a firm improving its efficiency and effectiveness in ways that competing firms are not (what might be called "strategic advantage," as in Barney, 1991), or economic rents (as in Barney, 1986a, as cited by Barney, 2001) (p. 48)."

Kraaijenbrink, Spender and Groen (2010) summarise the central critiques of the RBV through eight categories, including "(a) the RBV has no managerial implications, (b) the RBV implies infinite regress, (c) the RBV's applicability is too limited, (d) SCA is not achievable, (e) the RBV is not a theory of the firm, (f) VRIN/O is neither necessary nor sufficient for SCA, (g) the value of a resource is too indeterminate to provide for useful theory, and (h) the definition of resource is unworkable (p. 351)", with the later three criticisms having the more significant relevance. These criticisms are significant given the alignment to the concept dynamic capabilities and how dynamic capabilities may contribute towards satisfying and/or rationalising specific criticisms. It is recognised that scholars utilise a wide variety of definitions and intents to describe/refer to core research concepts (e.g. definition of terms such as resource, capability, dynamic, dynamic capability, alliance, network, competitive advantage, etc.). Rather than reflect and aspire to developing new definitions, this research program will explicitly identify the choice definitions (constructs) as it relates to the research aims, objectives.

Throughout the RBV literature the emphasis on strategic resources and resulting strategic resource bundles (Barney 1991; Priem & Butler 2001; Barney 2001) provide a striking resemblance and alignment to dynamic capabilities. With dynamic capabilities representing those distinct capabilities that a firm ultimately chooses to design and cultivate in order to establish and/or maintain a sustainable competitive advantage, strategic resources can be thought of the central building blocks of such (dynamic) capabilities (Wang and Ahmed, 2007).

More recently, it has been suggested that through the significant contributions towards and overall longevity of the RBV perspective (including but not limited to Penrose 1959; Wernfelt 1984; Barney 1991; Teece, Pisano & Shuen 1997, Priem & Butler 2001, Winter 2003 and Kraaijenbrink, Spender and Groen 2010) that the RBV has advanced to a resource-based theory (RBT) (Barney, Ketchen Jr. and Wright, 2011). Barney et.

al. (2011) argue that in order for the RBT to continue to advance and remain relevant, it must continue to explore/examine/clarify future research applications, including:

i) interlinkages with other perspectives;
ii) process of resource acquisition and development;
iii) the micro-foundations of resource-based theory;
iv) resource-based theory and sustainability; and
v) method and measurement issues within resource-based theory.

In building this research program, what follows is an examination of the links between RBV, RBT and dynamic capabilities. Within this broad "capability perspective" (Floyd et. al., 2000), the acquisition and/or development of dynamic capabilities through the engagement of a firm's alliance portfolio will be explored within specific case of the healthcare industry. It is argued that this ultimately leads to corporate shared value (CSV).

3.2 RBV, COMPETITIVE ADVANTAGE, AND INTERORGANISATIONAL NETWORKS

Barney (1991) posits that in order for resources to contribute towards a competitive advantage they must reflect and achieve the VRIN attributes/requirements. Barringer and Harrison (2000) identify interorganisational relationships as a means to secure VRIN attributes/requirements, largely through increasing the amount/quality of ideas through an increased "brain trust" (p. 373); and through increasing market penetration opportunities and overall brand reputation. Barringer and Harrison (2000) also identify however that the means (interorganisational relationships) of establishing a competitive advantage may in fact negate the VRIN attributes, insofar as a resource cannot necessarily meet the VRIN attributes if multiple organisations are in essence reward for participating/engaging in such a relationship. This research program will explore and examine under which conditions (within the context of resource theory) managers make the basic decision to obtain VRIN resources through the engagement of an alliance portfolio (a form of an interorganisational network), rather than building or buying such resources (Raab & Kenis, 2009).

3.3 PORTER'S 5-FORCES & RESOURCE BASED VIEW (RBV)

As described within the above sections, a major focus of strategic management research is the investigation to the requirements in achieving a sustainable competitive advantage. Porter's contributions (1980; 1985) represented a significant break in traditional literature insofar as he focused on firm performance within an industry environment that could be described as dynamic. Through the 5-Forces model (comprising of the threat of new entrants; threat of substitute products; buyer bargaining power; supplier bargaining power; and the overall competitive rivalry) Porter (1985) postulates that firms ultimately make a conscious decision as to how best position their respective strategy within a specific industry structure. Thus, the major decision of the firm is to determine and clarify, what specific activities build the desired strategy in alignment to the industry structure. Porter (1980) clarifies that such strategies are thematic, representing a choice between differentiation (focus on super-normal margin), cost leadership (efficiency) and niche.

Alternatively, the resource based view perspective (RBV) aims to determine how a firm aims to secure a sustainable competitive advantage via its unique resources, and resulting configurations. As outlined in the section below, resources are the foundational building blocks of capabilities, or bundled resources directed towards the accomplishment of a specific, defined intent. Wang and Ahmed (2007) describe resources as the basic building blocks to amount a strategic approach, with capabilities representing a general proficiency in prioritising and deploying resources to an intended outcome. Core capabilities are those which align and advance to the organisational strategy, with dynamic capabilities representing "the processes of transforming firm resources and capabilities into outputs in such forms as products or services that deliver superior value to customers; such transformation is embarked on in such a swift, precise and creative manner in line with the industry's changes (Wang & Ahmed, 2007; p 36)."

In comparing and contrasting Porter's framework with the RBV perspective in regards to sustainable competitive advantage, Spanos and Lioukas (2001) summarise that "whereas Porter views strategy as being primarily industry driven, the resource-based perspective posits that the essence of strategy is or should be defined by the firm's unique resources and capabilities (p. 910)." In considering the complementary aspects of the two-perspectives, Spanos and Lioukas (2001) suggest that:

"it could be argued that the resource-based approach, by emphasising firm-specific efforts in developing and combining resources to achieve competitive advantage, provides the "Strength-Weaknesses" part of the overall SWOT framework, while industry analysis supplied the "Opportunities-Threats" part (Foss, 1996) (p. 911)."

CHAPTER 4 - DYNAMIC CAPABILITIES

4.1 INTRODUCTION TO DYNAMIC CAPABILITIES

As the rate of change within the global competitive environment and resulting industrial markets continues to accelerate, firms have increasingly focused on building, acquiring and positioning unique resources and resource bundles to pursue sustainable competitive advantage (Teece, et. al., 1997; Eisenhardt et. al., 2000; Barreto, 2010). Where the RBV provides an appreciation of a firm's heterogeneous resources and resulting bundles within a more stable environment, dynamic capabilities provide an understanding of how such resources are deployed/bundled to achieve (if not a fleeting or temporary) competitive advantage (Barreto, 2010). Helfat and Peteraf (2009) posit "what is unique about the dynamic capabilities concept is that it also addresses that Holy Grail of strategic questions: how to sustain a capabilities-based advantage in the context of environmental change (p. 99)."

Teece et. al (1997) define dynamic capabilities "as the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments (p. 516)." Wang and Ahmed (2007) define dynamic capabilities "as a firm's behavioural orientation constantly to integrate, reconfigure, renew and recreate its resources and capabilities and most importantly, upgrade and reconstruct its core capabilities in response to the changing environment to attain and sustain competitive advantage (p. 35)." Helfat, Finkelstein, Mitchell, Peteraf, Singh, Teece and Winter (2007) define dynamic capabilities as "the capacity of an organisation to purposefully create, extend, or modify its resource base (p. 1)", and that this definition "applies to not-for-profit organisations (p. 6)." Dynamic capabilities represent those specific capabilities that a firm ultimately chooses to design and cultivate, thus becoming distinct, with the aim of obtaining and building a sustainable competitive advantage. This perspective complements Porter's (1980) industrial framework model insofar as the focus is internally within the internal-control of the firm, rather that the competitive forces within a given market/industry. Teece et. al. (1997) describe the resulting capability developments and there respective choices as heterogeneous, and sticky, inferring a certain time requirement or condition of such resource and resource complement choices. Teece et. al. (1997) also highlight the importance for internal and external competency development, stating that:

> "Winners in the global marketplace have been firms that can demonstrate timely responsiveness and rapid and flexible product innovation, coupled with the management capability to effectively coordinate and redeploy internal and external competencies (p. 515)."

Wang and Ahmed (2007) propose a cascading approach in describing the core elements and components ultimately required for a dynamic capability in describing a cascading assembly of resources, capabilities, core capabilities and dynamic capabilities. Wang and Ahmed (2007) describe resources as the basic building blocks, with capabilities representing a general proficiency in prioritising and deploying resources to an intended outcome. Core capabilities are those which align and advance to the organisational strategy, with dynamic capabilities representing "the processes of transforming firm resources and capabilities into outputs in such forms as products or services that deliver superior value to customers; such transformation is embarked on in such a swift, precise and creative manner in line with the industry's changes (Wang & Ahmed, 2007; p 36)." Given the unit of analysis of dynamic capabilities is that of the firm, Teece et. al. (1997) focus on processes, positions and paths, whereby "…the competitive advantage of firms lies with its managerial and organisational processes, shaped by its (specific) asset position, and the paths available to it (p. 518)." Additionally, Barreto (2010) suggests that advancing the concept of dynamic capability into a formalised theory would benefit from contributions towards the literature gap pertaining to the boundaries and conditions in which dynamic capabilities are effective. Barreto (2010) states:

> It is important that future research attempt to identify not only new types of firms for which dynamic capabilities are an important concept but also the types of firms for which the concept is less useful. Without such information, the risks of this literature becoming a "big tent" will be higher, reducing its practical value (p. 277-278).

Teece et. al. (1997) recognise the development of specific capabilities, and their respective integrations resulting in long-term consequences in terms of a firm's abilities and overall competitive direction. Thus dynamic capabilities represent an ability not only of the firm to be proficient, distinct, efficient and effective in their respective process and resulting product/service outcomes, but these internal processes and

resulting products/services must be alignment with the demands of the external competitive environment. It is within this perspective, that dynamic capabilities are recognised as a significant contributor towards a firm's ability to secure a sustainable competitive advantage. Eisenhardt and Martin (2000) criticise this perspective suggesting, "long-term competitive advantage lies in resource configurations, not dynamic capabilities (p. 1118)", which seems overly absolute in its perspective, suggesting a degree of mutual exclusivity between theoretical approaches which is rarely supported/observed in the literature. However, in their later contribution, Wang and Ahmed (2007) recognise resources and resource bundles as the foundation of capabilities, core capabilities, and ultimately dynamic capabilities. Thus, rather than resources or dynamic capabilities being solely responsible in securing a sustainable competitive advantage, perhaps, as Wang and Ahmed (2007) suggest, it is the advancement and comprehensive integration of resources, capabilities, core capabilities and dynamic capabilities, and all the requirements to support, including organisational learning, creation of alliances, network involvement, and integration into commercialisation ends that ultimately contributes to a sustainable competitive advantage.

4.2 DYNAMIC CAPABILITIES & SUSTAINABLE COMPETITIVE ADVANTAGE

In order for firms to position towards a sustainable competitive advantage, it has been proposed that such resources and resulting capabilities must be valuable, rare, inimitable, and non-substitutable (critical), or "VRIN" components (Barney, 1991; Wang and Ahmed, 2007). Eisenhardt and Martin (2000) summarise the central criticisms of the RBV and resulting dynamic capabilities approach, as being vague, non-directional and non-alignment with empirical developments. In their review, development, and compare/contrast of existing literature, Eisenhardt and Martin (2000) provide the following summary table outlining the re-conceptualisation of dynamic capabilities (p. 1111) (shown below):

	Traditional view of dynamic capabilities	Reconceptualization of dynamic capabilities
Definition	Routines to learn routines	Specific organizational and strategic processes (e.g., product innovation, strategic decision making, alliancing) by which managers alter their resource base
Heterogeneity	Idiosyncratic (i.e., firm specific)	Commonalities (i.e., best practice) with some idiosyncratic details
Pattern	Detailed, analytic routines	Depending on market dynamism, ranging from detailed, analytic routines to simple, experiential, ones
Outcome	Predictable	Depending on market dynamism, predictable or unpredictable
Competitive Advantage	Sustained competitive advantage from VRIN dynamic capabilities	Competitive advantage from valuable, somewhat rare, equifinal, substitutable, and fungible dynamic capabilities
Evolution	Unique path	Unique path shaped by learning mechanisms such as practice, codification, mistakes, and pacing

Table 1: Traditional and Reconceptualisation View of Dynamic Capabilities, as presented by Eisenhardt and Martin (2000)

Perhaps most importantly, Eisenhardt and Martin (2000) suggest that the realisation of a sustainable competitive advantage, the central intent of dynamic capabilities, is more complex, asymmetrical and varied than traditionally postulated. Eisenhardt and Martin (2000) go so far as to suggest possible business model components to assist in the development of such dynamic capabilities, including rapid prototyping, real-time information, clustered teams/alliances, and extensive communication as a means to align internal (firm) capability development and the competitive industrial-market. A key insight offered by Eisenhardt and Martin (2000) is that as change within the environment becomes less moderate and more volatile, the ability for organisational leaders to identify, develop, recognise and evolve capabilities is mitigated; however, they suggest that organisations can alter capabilities through leveraging, creating, accessing and releasing resources. Helfat et. al. (2007) posit "strategy matters most during times of change", and "to survive and prosper under conditions of change, firms must develop the 'dynamic capabilities' to create, extend and modify the ways in which they make their living (p. 1)."

In their review and assessment of the current empirical literature base, Wang and Ahmed (2007) identify three major component factors of dynamic capabilities, including adaptive, absorptive and innovation capabilities. The adaptive capability refers to the nimbleness of the firm in recognising industrial shifts (opportunities and threats), and ultimately positioning organisational resources to secure competitive advantage. The absorptive capacity reflects the learning culture and effectiveness of an

organisation. An organisations ability to learn and apply such knowledge and/or intelligence is critical to organisational growth, change and development. Finally, a firm's ability to innovate and create new products, services, markets, networks, and processes is essential for organisational growth and regeneration. Wang and Ahmed (2007) propose a conceptual framework integrating the major components and integration of dynamic capabilities (provided below) (p. 39):

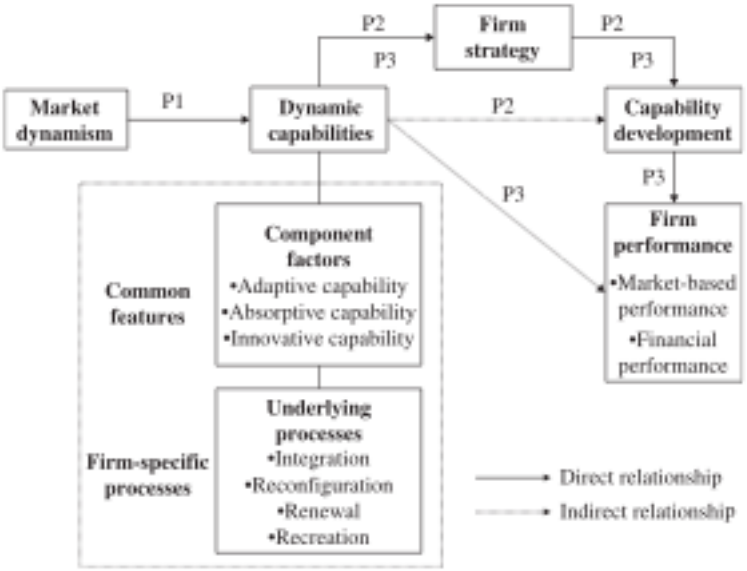

Figure 1: From Wang and Ahmed (2007)

The essence of the above framework is that dynamic capabilities are developed in response to a dynamic, or volatile industry. The alignment between the resulting dynamic capabilities and the firm's strategy is critical, insofar as the resulting strategic focus leads to a distinct, value creating set of capabilities, which in turn, Wang and Ahmed (2007) propose have a direct impact on firm performance. A key inference of their model is that dynamic capabilities do not have a direct impact to firm performance; rather, it is an indirect relationship/contribution. The candidate would suggest that a core criticism of the conceptual framework relates to the directional relationships outlined within the framework itself. More specifically, are firms able to "design and build" specific dynamic capabilities, align to an overall strategy, develop a set of distinct capabilities that lead to high performance; or are high-performance organisations successful because they defaulted (by choice) the right mixture and balance of capabilities that were ultimately required in the future market environment?

4.3 DYNAMIC CAPABILITIES, SUSTAINABLE COMPETITIVE ADVANTAGE & NETWORKS

The alignment between the literature of dynamic capabilities and interorganisational networks is significant. Firms choose to participate in interorganisational networks for a variety of reasons, including access to unique resources, markets, distribution channels and/or customers; the opportunity to learn, grow and share in the collaborative development of intellectual property; and the development and cultivation of specific competencies, including "production, marketing, distribution, regulatory approval, and access to new technologies (Gulati 1998a, p. 299). These empirical findings within the network literature align to the main component factors of dynamic capabilities, insofar as the central resulting focus of these factors is to identify and pursue new market opportunities; to integrate and embed organisational learning into commercialisation objectives; and to create new products, services and markets through innovation (Wang & Ahmed, 2007). Where the literature of dynamic capabilities suggests the specific factors required to establish such capabilities, the network literature base suggests specific insights in how such ends may be achieved through collaborative relationships with other organisations and/or networks. More specifically, Barreto (2010) suggests that "Eisenhardt and Martin (2000, p. 1110) argued that dynamic capabilities are important not only in high-velocity markets but also in "moderately dynamic" markets, that is, those where "change occurs frequently, but along predictable and linear paths (p. 262)."

Beyond the alignment and fit between the literature of dynamic capabilities and network theory, some fundamental questions can be considered within current literature gaps, especially as it relates to the application of these theoretical insights in strategic and managerial practice. For example, the literature within dynamic capabilities suggests that firms should focus on building capabilities that best support, align and advance their respective core business, does it by extension infer that in order to operationalise the development of such capabilities, that organisations should seek and align their respective alliances and/or network involvements to those which are aligned to their core business? To take this consideration a step further, do managers consciously or unconsciously seek out such partners, specifically within the dynamic capabilities of commercialisation and innovation? And given the dynamic nature of the competitive market, how does the development and effectiveness of these (dynamic) capabilities

evolve over time, and what is the impact in regards to the complement of alliances/network partners? The integration between the literature bases of dynamic capabilities and interorganisational networks (specifically alliance portfolios) provides a rich opportunity to explore these fundamental questions, which the candidate intends to contribute towards via this research program.

4.4 DYNAMIC CAPABILITIES: EMPIRICAL INSIGHTS & GENERAL CRITICISM

An empirical case study of Smith Corona, Danneels (2011) identifies the failure to adapt as the primary reason for the firm's commercial failure. As Danneels (2011) explains, Smith Corona was successful only once in creating a new operational competence in electronics, but failed to capitalise in developing an appropriate business model to support such a capability. Danneels (2011) recognises the concept of "resource cognition", defined as "the identification of resources and the understanding of their fungibility (cf. Denrell, Arvidsson, and Zander, 2004; Marino, 1996; as cited by Danneels 2011), and results in resource schemas (p. 21)", which is significant given "understanding resource cognition is critical to advancing the theory of dynamic capability (p. 26)." Danneels (2011) offers insight on the central questions required to achieve resource cognition, including "what are our key resources and competencies, and what is the range of their potential uses (p. 27)." Within this empirical case study, it is suggested that Smith Corona was unable to achieve clarity to these critical questions, and as a result, remained fixed, or stuck in historical schemas, which in-turn act as strategic blinders to perceived (current and future) value and application of existing resources to new markets and opportunities. Understanding the process in which managers and organisations ultimately achieve resource cognition remains a critical gap in the existing literature (Danneels, 2011). Achieving competency in resource cognition (through and in conjunction to interorganisational relationships) and appreciating if such relationships can create new dynamic capabilities is a central focus of this research program. As a general criticism, in drawing from the Smith Corona case one must be careful in considering the scope of generalisability, given the focus of a single company. Secondarily, while the Smith Corona case study provides interesting insights and resulting concepts (e.g. resource cognition), one must appreciate that reflections in hindsight are often presented in greater linearity and clarity than experienced in reality. This criticism should be appreciated not only within the Smith Corona case, but also in

any manager's application of strategic management concepts such as dynamic capabilities.

It is important to recognise that the theory and conceptual application of dynamic capabilities is not limited to large, established organisations. Newbert (2005) identifies that the process of firm formation, lead by entrepreneurs, is in fact a dynamic capability, whereby activities/processes such as "developing a model and/or prototype, purchasing materials, buying and/or renting facilities and/or equipment, investing their own money, committing full time to the venture, hiring employees, and engaging in promotional efforts are significantly and positively related to new firm formation success for all nascent entrepreneurs (p. 67)." This is significant not only for new (small) business formation, but increasingly for medium to large firms whom are actively investing in "intrapreneurship" and subsidiary "spin-offs" to support the development of specific dynamic capabilities (e.g. commercialisation and innovation) and growth. Secondly, while the unit of analysis is the entrepreneur and the resulting small business, the theoretical alignment between the development and cultivation of dynamic capabilities within this perspective suggests a degree of scalability to larger firms, insofar as the consistent tension between internal development/positioning and the external market needs and requirements.

The concept of dynamic capabilities is not without criticism. Winter (2003) concisely summarises the bulk of criticism in stating:

> "Many strategy scholars remain sceptical about the value of the concept of 'dynamic capabilities.' While some see dynamic capabilities as the key to competitive advantage (Teece, Pisano, and Shuen, 1997), others seem to doubt that there actually are such things. Still others believe that they exist, but suspect that they are 'born, not made'—i.e., they doubt that deliberate efforts to strengthen such capabilities are a genuine option for managers. And some believe that while they are a genuine option, they are not necessarily something that confers competitive advantage. (p. 991)."

Winter (2003) suggests that there are differing levels of capabilities, including "operational capabilities" as well as dynamic capabilities, and suggests that "ad hoc" decision making may allow a firm to actually be more effective in its response and more

efficient in its required resources to solve the strategic management challenge, given a lack of investment (and opportunity cost) required to establish a set of dynamic capabilities. In discussing core capabilities, Leonard-Barton (1992) describes a related perspective in suggesting that the development of core-capabilities both mitigates and advances development. More specifically, Leonard-Barton (1992) posits that:

> "Values, skills, managerial systems, and technical systems that served the company well in the past and may still be wholly appropriate for some projects or parts of projects, are experienced by others as core rigidities-inappropriate sets of knowledge. Core rigidities are the flip side of core capabilities. They are not neutral; these deeply embedded knowledge sets actively create problems. (p. 118)"

As is the case with other macro concepts and constructs, the phrase "dynamic capabilities" carries a wide variation of definitions and intent. As with any research program, it is essential that a clear definition of terms and phrases be established to clearly delineate the variables and topic of study. For this reason, and in recognition of the related criticism related to dynamic capabilities, the established definition for this research program is provided by Barreto (2010):

"A dynamic capability is the firm's potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-oriented decisions, and to change its resource base (p. 271)."

CHAPTER 5 - DYNAMIC CAPABILITY: INNOVATION & COMMERCIALISATION

5.1 INTRODUCTION

Throughout the developed world, graduates of healthcare education face an industry in transition, with core challenges related to cost of care, quality of care (including patient safety) and overall access to care. Industry innovations and resulting commercialisation offer significant contributions to these macro-societal challenges, while offering the lead organisation an opportunity for growth, recognition and financial contribution towards core business priorities. The resulting section integrates the capabilities of innovation and commercialisation together, via the perspective that innovation without commercialisation is just an idea (Johnson, 2010). In response, networks such as the MaRS Discovery District located in Toronto, Ontario Canada, which situates research, business and capital together, providing entrepreneurs with educational, consulting and access to financial capital resources[2].

5.2 STRATEGIC MANAGEMENT, STRATEGIC CHANGE & BUILDING DYNAMIC CAPABILITY

In considering the intent of building new dynamic capability in innovation, MacIntosh and MacLean (1999) provide an applicable framework explaining how rapid, fundamental and transformational change is approached. MacIntosh and MacLean (1999) explain that organisations (resulting from external and/or internal requirements, ultimately leading in failing performance) are forced to contemplate and learn "how to do to things differently", or in greater context, build new dynamic capability illustrated below through the "bifurcation zone" (p. 305):

[2] (http://www.marsdd.com)

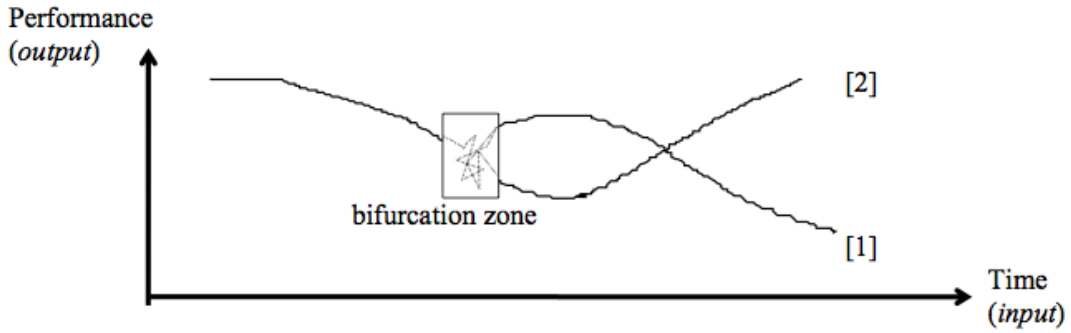

Figure 2: From MacIntosh and MacLean (1999)

As organisations transition out from the "bifurcation zone" MacIntosh and MacLean (1999) observe that initially, focusing on the traditional means/strategies (through a corresponding increase in control/focus) leads to an initial increase in performance, followed by a rapid performance decline (identified via curve [1]). Alternatively, the new methods lead to an initial/immediate drop in performance, which results in "switching pressures" back to the traditional methods; however, if the pressures to resort back to traditional strategies are withstood, the organisation eventually transitions to an increased level of performance (identified via curve [2]). Those firms that ultimately follow curve [2] have demonstrated an ability to create new dynamic capability. This process, and the need to constantly learn, evolve and build dynamic capability are repeated throughout the longevity of the firm. From an empirical standpoint, the case study involving Smith Corona (Danneels, 2011) provides a unique illustration involving the integration of the above framework, the inability of a firm to create dynamic capability, and the resulting corporate failure.

A closely related concept in strategy literature is that of "skunkwork projects" which are typically developed by small teams investigating new technologies, strategies, and/or approaches. Similar to the above framework offered by MacIntosh and MacLean (1999), skunkwork projects are often seen as counter to the traditional way of doing things, or considered outside the focus/intent of the core business. There is typically immense pressure to end such projects due to the (perceived) high costs and limited benefits, however such projects can lead to revolutionary change and developments (Rich, 1994).

While different concepts, the framework of MacIntosh and MacLean (1999) and that of skunkwork projects offer unique and powerful insights as to why strategic change (of the rapid, revolutionary, transformational perspective) is so difficult to achieve, and why strategic inertia is often the empirical result. Organisations that have successfully grown and secured super-normal profits over a sustained period of time will experience a preference for past processes and allocations, leading to a "sticky", if not increasingly irrelevant culture (Manjumdar, 1999). These insights will be critical in the design and development of the data collection and analysis phases of this research program, insofar as these themes will be examined within the context of building dynamic capabilities (new ways of doing new things) within/between interorganisational relationships.

5.3 INNOVATION, COMMERCIALISATION & THE ORGANISATIONAL BUSINESS MODEL

In defining innovation, Kline and Rosenberg (1985) propose that "we might think of innovation as a new product, but it may also be i) a new process of production; ii) the substitution of a cheaper material, newly developed for a given task, in an essentially unaltered product; iii) the reorganisation of production, internal functions, or distribution arrangements leading to an increased efficiency, better support for a given product, or lower costs; or iv) an improvement in instruments or methods of doing innovation (p. 279)." The definition above provides a critical distinction in considering innovation, insofar as it reflects not only reflects specific product/service innovation, but also reflects "a new process of production", which alternatively could be described as a "business model". This is critical, as demonstrated via Apple's iTunes/iPod™ technologies, where an innovative business model was necessary to support, sustain, and grow the adoption of the innovative product/service. Christensen (2009) suggests that when dealing with disruptive (as apposed to sustaining) innovations, the lack of a corresponding innovative business model "spells suicide" for the commercialisation process/results.

This result is a (simplified for conceptual illustration and clarity) process whereby specific dynamic capabilities impact and integrate to support an initial innovative idea to commercial launch (Christensen 2003, 2009; Johnson, 2010; Rothaermel & Hess, 2007):

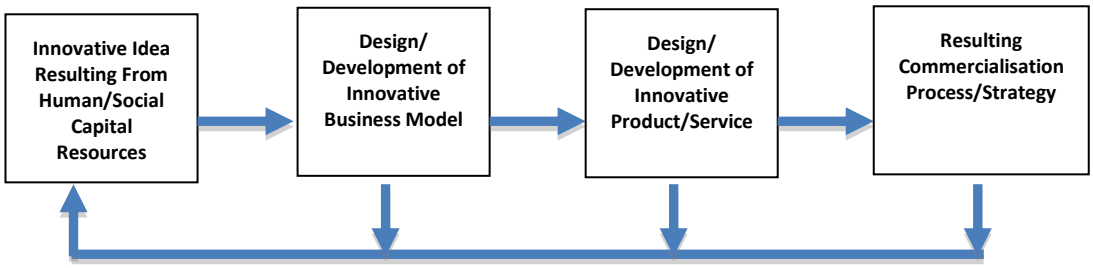

Figure 3: Influenced and informed by Christensen 2003, 2009; Johnson, 2010; Rothaermel & Hess, 2007

Each of the segments illustrated in the above model represent specific, integrative dynamic capabilities, including the management of human capital, innovation of both business models and products/services, and commercialisation. While the focus of this research program is centred on the dynamic capabilities of innovation and commercialisation, human capital management has been recognised above as the genesis to innovation and commercialisation. As Simon (1991) states:

> "all organisational learning takes place inside human heads; an organisation learns in only two ways: (a) by the learning of its members, or (b) by ingesting new members who have knowledge the organisation didn't previously have (p. 125)."

Lichtenthaler (2005) states "External knowledge commercialisation (exploitation) describes an organisation's deliberate commercialising of knowledge assets to another independent organisation involving a contractual obligation for compensation in monetary or non-monetary terms (p. 233)."

5.4 INNOVATION, COMMERCIALISATION & DYNAMIC CAPABILITIES

As developed in the previous sections above, an organisation establishes a business model to "deliver value in return for compensation (Johnson 2010, p. 6)." In examining why so many innovations fail to secure the commercial objectives Christensen (2009)

compares the legislative process, one complete with mitigation and bargaining of original intent, to that of advancing an innovative idea/business model within an established organisation. In regards to disruptive innovation, Christensen (2003) states that based on empirical analysis (mainly within the industries of hardware technology and steel manufacturing) that:

> "In sustaining circumstances – when the race entails making better products that can be sold for more money to attractive customers – we found that incumbents almost always prevail. In disruptive circumstances – when the challenge is to commercialise a simpler, more convenient product that sells for less money and appeals to a new or unattractive customer set – the entrants are likely to beat incumbents (p. 32)."

Christensen (2003) provides an applicable healthcare example in the development of angioplasty procedures, where rather than providing a direct alternative to open heart surgery, the procedure offered a temporary treatment for patients who were receiving no treatment whatsoever. Following the themes of dynamic capabilities, Christensen (2003) suggests that innovations (both business models and products/services) should be focused on customers that are "non consumers" (p. 288), thus requiring an alternative approach and offering to new segments. Alternatively, Christensen (2003) recommends creating product/service offerings that are "just good enough", and that result in "low-end disruption" (p. 288). Christensen (2003) recognises the role of dynamic capabilities in securing a sustainable competitive advantage in stating "It is better to develop competencies where the money will be made in the future than to cling tenaciously to those skills that made you successful in the past (p. 289)." While Wang and Ahmed (2007) describe dynamic capabilities within the context of a cascading framework (inclusive of resources, capabilities, core capabilities, dynamic capabilities), Christensen (1997) describes organisational capabilities in terms of resources, processes and values, or "RPV Framework" (p. 191). In utilising either framework, both perspectives provide guidance and direction to strategists to which innovations to pursue/commercialise. As a general criticism, in reviewing Christensen's contributions (1997; 2003; 2007) one must be careful to the generalisability of the findings and recommendations, as Christensen's work was largely completed within the computer disk-drive industry. Application and generalisation to other industrial settings without caution lends these findings and resulting theory to being tautological.

CHAPTER 6 - STRATEGIC ALLIANCES, NETWORKS & ALLIANCE PORTFOLIOS

6.1 INTRODUCTION TO NETWORK ENVIRONMENTS

Within the well established literature of strategic alliances, the concept of constellations; clusters; alliance portfolios; inter-organisational, integrated and whole networks has received significant interest within the last 30-years (Gulati 1998a, 1999; Gomes-Casseres 1994; Lorenzoni and Baden-Fuller 1995; Barringer and Harrison 2000; Wassmer 2010). The research field proposes several alternative, if not complementary paradigms of which alliance networks originate from including the fields of sociology (dyads), economics (transaction cost economics), computer science (information management) and strategy (sharing of select resources; distribution of collective risk; etc.). Barringer and Harrison (2000) identify interorganisational relationships as being one of a number of specific forms, including a joint venture; network; consortia, alliance, trade association; and interlocking directorate. While appreciating that these forms are not necessarily mutually exclusive, and further that relationships (and the respective forms) evolve and change over time, the focus and interest of this literature review and research proposal will focus specifically on interorganisational networks.

In examining and researching interorganisational networks, Barringer and Harrison (2000) summarise the major theoretical paradigms within the field, including:

i. Transaction costs economics;
ii. Resource dependency;
iii. Strategic choice;
iv. Stakeholder theory;
v. Organisational learning and institutional theory.

Rather than relying on a single paradigm to examine, understand and appreciate interorganisational networks, Barringer and Harrison (2000) propose that “blending the theoretical paradigms together may provide an even more useful means of understanding the formation of interorganisational networks” (p. 382). While the theoretical perspectives described above hold potential value for future research, the intent of this research program will primarily be focused on the resource dependence

perspective (Barney, 1991; Teece, Pisano & Shuen, 1997; Eisenhardt & Martin, 2000; Priem & Butler, 2001; Wang & Ahmed, 2007; Snow, Fjeldstad, Lettl and Miles 2011), with influences from the strategic choice and stakeholder theory of the firm perspectives. The theoretical perspectives of transaction costs economics, organisational learning and institutional theory will not be a major focus of this research program, and if reflected, will be done so peripherally.

In their summary article on interorganisational networks at the network level, Provan, Fish and Sydow (2007) illustrate that the peer-reviewed literature associated with the general topic areas of 'networks', 'alliances', and 'clusters' is significant[3]. The literature base can be further defined to include the four major relational perspectives in researching network relationships, including: dyadic/triadic alliance networks; the impact of the alliance network to an organisation; the impact of an organisation to an alliance network; and finally the emerging field of 'whole networks' (Provan, Fish and Sydow, 2007). It is this final network perspective, the unit of analysis as the network itself, that is unique and also the most challenging in terms of applied research. Based on the review of the empirical research, Provan et. al. (2007) recommend the following directions and macro-areas for consideration in future whole network research:

i. network properties and processes
ii. network governance and operations
iii. network development, dynamics and evolution
iv. network outcomes and effectiveness

Provan et. al. (2007) summarise the methodological challenges in applying current research methods to whole networks given the unit of analysis is the network itself, core resource challenges such as time, money are frequently realised. In addition, Provan et. al. (2007) identify the issue of "boundary", or "network bounding" as a central challenge, insofar as "network boundaries generally must be more carefully defined and delineated, so that it is clear which nodes and ties are included in the network and which are not (p. 504)."

[3] Using the InfoTrac Search Engine, 46,500, 5,309 and 14,717 matched articles, respectively. Provan, K.G.; A.C. Fish and J. Sydow. 2007. Interorganisational networks at the network level: A review of the empirical literature on whole networks. *Journal of Management* 33(3): 479 - 516.

Within the network literature, there is a wide application and reference to terms such as networks, network clusters, and alliance portfolios, which are often used interchangeably to refer to any network engagement on behalf of a firm (Wassmer, 2010). Grounded and derived from the network literature base, Wassmer (2010) defines alliance portfolios as "as a focal firm's past as well as ongoing strategic alliances", with Baum (2000) defining as "a focal firm's egocentric alliance network." For the purpose of clarity, this research program will examine the role of a specific network relationship, that of the alliance portfolio, in the development of dynamic capabilities within healthcare firms. This is a critical distinction, and one that fits well with the theory of dynamic capabilities insofar as the focus of analysis remains on a focal firm, and the net outcome resulting from the engagement of a portfolio of alliances (both past and present). It is also acknowledged that the more generic phrase "interorganisational networks" will be used throughout the research program, which reflects the general established practice within the network literature base.

The purpose and intent of interorganisational networks can take a number of forms, including marketing networks, commercialisation networks, strategy networks, research and development networks, technology networks, supplier networks and distribution networks (Moller et al. 2003; Aarikka-Stenroos and Sandberg, 2009). In explaining the intent of various networks, Moller et. al. (2005) suggests:

> "The way economic value is created is fundamentally changing. The increasing importance of knowledge, technological complexity, global competition, and the availability of digital information technology are driving this change (Castells, 1996). Individual companies, even major multinationals, such as ABB, IBM, Microsoft and Nokia, cannot internally master all the relevant value activities of the value chain from product innovation to customer care, nor is it economically sensible for them to try (p. 1274)."

Thus, the engagement with interorganisational networks/alliance portfolios, as an attractive and potentially effective business model for firms to secure a competitive advantage has been established within the literature. From a business development and commercialisation perspective, a firm's involvement within an interorganisational network could help secure resources, learning, capabilities and contacts critical to the development of product/service offerings (innovation), and the successful launch of

such products/services within the competitive marketplace (commercialisation). Moller et. al. (2009) suggests the employment of such network strategies to help navigate the development and commercialisation efforts within specific markets:

> "…"high-velocity markets" (as defined by Eisenhardt and Martin, 2000), characterised by nonlinear and unpredictable change, with blurred market boundaries and ambiguous and shifting market players, with no evidently-successful business models (p. 450)".

Prahalad and Hamel (1990) propose that the sustainable competitive advantage of an organisation rests with the core competencies in which an organisation identifies, cultivates and leverages within the competitive environment. In defining core competencies, Prahalad and Hamel (1990) propose that that core competencies should provide access to diverse markets; contribute towards the value proposition as it is dedicated to the customer; and be difficult for competitors to identify, interpret, and ultimately, copy. Core competencies reflect the "know-how", or "collective corporate learning" that can be applied to product development (innovation), relationships with customers or suppliers, and/or commercialisation objectives. The core competencies of innovation and commercialisation are significant from a contextual and directional perspective. While the focus of organisational competencies has had a significant contribution to the field of strategic management and development, the lack of perspective or applied focus to how such competencies evolve over time and through major industrial transformations suggests a degree of stability that is rarely observed in most industrial settings. This specific criticism of competencies can be considered strength of the dynamic capabilities literature. A major source of innovations and breakthroughs occur within or with the collaboration of universities and colleges and industry. Litan, Mitchell and Reedy (2007) suggest that given the mandate of basic sciences (and the associated innovation) within universities and colleges, commercialisation as a core competency has been considered outside the defined university role. Isett and Provan (2005) posit that interorgansational networks within the public industry may operate differently than those in private industry, given the dynamics associated with government financing and resulting legislation/regulation.

The capabilities and functions of innovation and commercialisation remain a critical and timely challenge for non-profit organisations. Aarikka-Stenroos and Sandberg (2009)

propose that the establishment and integration of the R&D and commercialisation networks are critical to the overall commercial success of the product/service launch phase. The authors also suggest that the integration of government agencies, for-profit, and non-profit entities within the collaborative R&D and commercialisation networks all play significant roles and provide critical contributions to the success of the product/service introduction. While the insights provided by Aarikka-Stenroos et al. (2009) are encouraging, the methodology suffers from a limited scope insofar as the research program contrasts the effectiveness of two separate networks within the context of fundamentally different projects, and arguably differing industry space (product development and launch). Such a small sample of participants and investigation to limited industrial sectors in the same geographic environment potentially limit the overall validity and generalisability of these insights. In leveraging a network perspective to describe how to best influence the creation of new business fields, Moller et. al. (2009) summarises that "proactive firms possessing strong learning and networking capabilities not only survive in the dynamic environment of new business fields, but can also influence the birth of future innovations and new product developments (p. 457)."

Recently the network literature has focused on the creation of "intentional nets" as a means for individual firms to not only innovate, but also commercialise such innovations. Aarikka-Stenroos and Sandberg (2007) derived a synthesised conceptual framework outlining the integration of strategic network theory in the context of an infused innovation and commercialisation network (p. 6) (shown below).

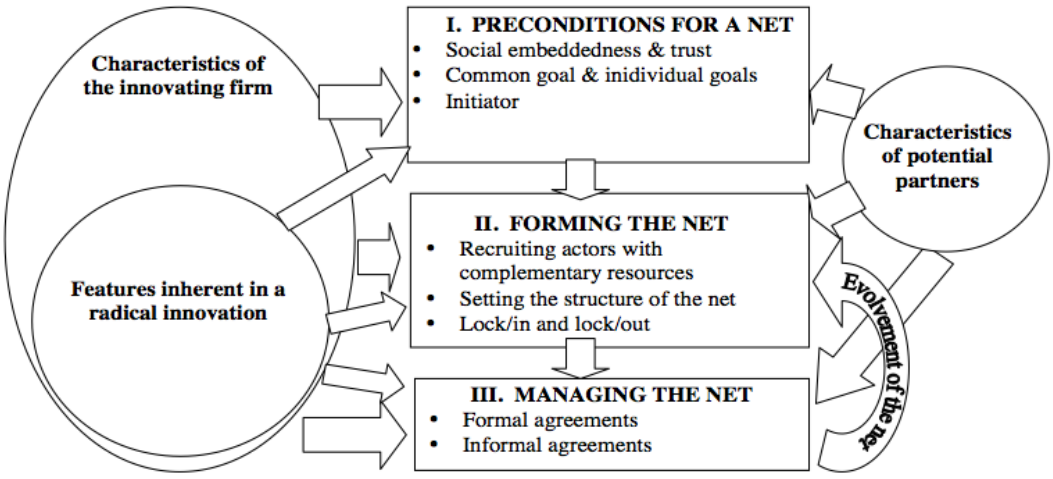

Figure 4: Aarikka-Stenroos and Sandberg (2007)

Aarikka-Stenroos and Sandberg (2007) describe the conceptual framework above as "a preliminary framework describing the creation and management of a net needed to commercialise a radical innovation (p. 6)." The framework provides the rationale and emerging core requirements for network formation, and the initial creation and evolution of the network. The themes outlined within the framework created by Aarikka-Stenroos and Sandberg (2007) strongly reflect the suggested macro-themes for future network research outlined by Provan et. al. (2007), including network structure, network development, network governance, and network outcomes. It is this final macro-theme, that of network outcomes, that this model could potentially be further developed and enhanced. The framework developed by Aarikka-Stenroos and Sandberg (2007) could be advanced in three-specific ways. First, the articulation and definition of a "radical innovation" requires clarity and consensus beyond the subjective "newness" of an invention. Secondly, while the conceptual framework provides an excellent description of the core "means" of network establishment and evolution, it remains silent in identifying the "ends" or results of network engagement/participation. Lastly, the conceptual framework has experienced nominal application and exposure to an audience beyond select case studies. Based on these criticisms and reflections, the model could be potentially expanded to include a more comprehensive perspective of network establishment, evolution and outcomes. In attempting to advance such a conceptual framework, methodologically Corbin and Strauss (2008) support leveraging and synthesising the existing literature (together with initial conceptual frameworks) to provide an informed and directed preliminary/initial theory to begin the grounded theory process. As such, the candidate intends to employ a case study approach together with a grounded theory methodology to advance the core aims and objectives of this research program.

In summarising the literature, Barringer and Harrison (2000) identify that the literature suffers from a "halo effect," suggesting that the research base associates positive outcomes and general organisational success with network involvement and engagement, whilst rarely suggesting or identifying the costs and disadvantages to network involvement. While this challenge is identified, no recommendations or insights are suggested as to how best to rectify this perceived imbalance within the literature. In addition, the literature base tends to be historical in perspective, analysing and assessing generally what networks accomplished, or how the operated within a set-term or project. The dynamic nature of the network, and the state of effectiveness over

time is rarely investigated. As a whole, the literature suggests that engagement with networks are positively associated with organisational learning and competency/capability development, however as a further criticism, these generic benefits tend not to be examined with any significant degree of rigor as to the effectiveness in transferring such capabilities, the costs resulting from network engagement, and how network effectiveness is secured over the long-term.

6.2 NETWORK-ALLIANCE PORTFOLIOS & DYNAMIC CAPABILITIES OF INNOVATION, COMMERCIALISATION

In examining dynamic capabilities and innovation (and by extension commercialisation) within the biotechnology industry, Rothaermel and Hess (2007) posit "Dynamic capabilities facilitate not only the ability of an organisation to recognise a potential technological shift, but also its ability to adapt to change through innovation (Hill and Rothaermel 2003, as cited by Rothaermel and Hess 2007)." Their fundamental criticism is related to the state of literature base with the fields of RBV and dynamic capabilities, insofar as the core aspect of "heterogeneity" is widely assigned to only a single level of perspective without specific reference to the source. More specifically, is the source of advantage/dynamic capability (in this case innovation) located at the individual, firm or network level (Rothaermel & Hess 2007, p. 898). Rothaermel & Hess (2007) further suggest that the current literature fails to appreciate the integration and interdependency between the level of the individual, firm and network, and its relation to creating and sustaining heterogeneity at any/all of these respective levels.

In regards to building capabilities through alliance portfolios, Rothaermel & Hess (2007) state that:

> "industries characterised by complex and rapidly expanding knowledge bases, the locus of innovation lies within a network of learning composed of incumbent firms, new entrants, and research institutions, rather than within the boundaries of individual firms. Thus, to build new capabilities within an emerging technological paradigm, incumbent firms frequently need to leverage their external networks to source new technology (p. 901)."

Rothaermel & Hess (2007) also acknowledge the integration between the resource based perspective, dynamic capabilities and alliance portfolios:

> "Although the resource-based view tends to focus on the importance of the internal asset base of the firm, researchers have recently posited that network relationships may allow a firm to leverage unique resource combinations. Dyer and Singh (1998) highlight relation- specific assets, knowledge-sharing routines, complementary resources and capabilities, as well as effective governance as antecedents to an interorganisational competitive advantage (p. 901)."

Through their results, the authors found that innovative output, defined as the amount of patents obtained within a given time-period, was positively correlated to intellectual human capital; that while increasing expenditures on R&D is correlated with an increase in innovative output, it does so at a diminishing rate; and finally that while acquiring firms with a capability in innovation can increase the innovative output of a respective firm, there was no support in the data that network participation (alliances) led to an increase in innovative output. In explaining why networks had no positive correlation to a firm's innovative output, Rothaermel & Hess (2007) suggest that:

> "The successful transformation and implementation of codified knowledge obtained in an alliance still requires that the firm has the ability to assimilate and apply this knowledge (Cohen and Levinthal 1989, as cited by Rothaermel & Hess, 2007). Thus, by controlling for this internal ability, encompassing both intellectual human capital and R&D capability, we see that alliances, as a stand-alone mechanism, appear to be of little value to firm innovation. Although a firm can acquire the requisite dynamic capabilities to innovate through acquisitions, we find, in contrast, that the firm must already possess prior R&D capability for alliances to be a viable mechanism for innovation, as is highlighted in the significant interaction effects across levels of analysis (p. 915).

Rothaermel & Hess (2007) did however find interdependencies in heterogeneity throughout the levels of the individual, firm and network, but found a disproportionate impact within the level of the individual. Further, while strength in human capital (individual) had a direct contribution to innovative output, those at the firm and network level were complementary (p. 916). In the classic build-buy-partnership decision, within

the context of the biotechnology industry, innovation was best supported through investment in human capital, with mitigated contributions resulting from increases in R&D spending, and little to no impact from alliance/network involvement.

One final theme reflected in the innovation literature is that more is not always better (Christensen 2003; Rothaermel & Hess 2007). In order to build specific dynamic capabilities in innovation (and resulting commercialisation) organisations must be intentional in choosing those investments and contributors that are best suited within their respective industries, organisations and product/service/business models at-hand.

Evolving from strategic alliances and networks, Snow, Fjeldstad, Lettl and Miles (2011) describe the most recent form of interorganisational collaboration as "communities", whereby the "community is focused on the innovation and commercialisation of technology (p. 8), which have resulted in approximately "60 solutions" to-date. Through a single case study of Blade.org, Snow et. al. (2011) illustrate the development of dynamic capability of innovation and commercialisation through a dedicated, multifaceted interorganisational environment involving ~250 participating firms. Snow et. al. (2011) posit that interorganisational networks, or "collaborative community of firms" (p. 11) can be designed and cultivated to match and leverage the experience, capabilities and resources of differentiated firms, including "prospectors, defenders, and analysers (p. 5)" representing a close resemblance to Porter's (1980) generic strategies of differentiation, cost leadership and niche, respectfully. Snow et. al (2011) make a critical distinction of the Blade.com model which is that it an intentional model built through explicit organisational design, rather than an informal open source community which has dominated the software industry over the past decade. As with all single case studies, one must be careful in accepting the generalisation and resulting application to other environments. Directionally, the Blade.com case study provides insight to an alliance portfolio where the benefits and focus is centralised largely on a hub-firm, in this case IBM, the owners of the blade server technology. It should be recognised that this is one approach of interorganisational collaboration leading to the development of dynamic capability in innovation and commercialisation, and that other, less structured (and perhaps) intentional collaborations may lead to similar results.

The relationship of relationship formalisation and resulting organisational design will be explored further in the interviews of this research program.

CHAPTER 7 - RESEARCH QUESTIONS, AIMS & OBJECTIVES

As illustrated in the preceding literature review chapters, the pursuit of competitive advantage through the establishment of dynamic capabilities (specifically innovation and commercialisation) through both specific alliance and subsequent alliance portfolios can be an effective strategy. While the current literature provides a comprehensive breadth of characteristics and factors related to alliance relationships, the aim of this research program is to explore, specifically, the factors and variables related to the establishment of dynamic capabilities amongst firms; what factors and variables are relevant; how managers interact and perceive this process; how dynamic capabilities are developed; where the resulting capabilities reside. Subsequently, the candidate also intends to explore the relationship between individual alliance agreements, and the transition to an organisations alliance portfolio. Finally, the alliance portfolio itself will be explored, in terms of the management; evolution and overall benefits of such an alliance portfolio. Specifically, the development of dynamic capabilities, and the role and impact of an organisation's individual alliance relationships and that of the alliance portfolio represent the core (applied) strategic management problem to be examined/explored. To this end, the candidate will focus this research program to the following research questions, aim and objectives:

Research Questions:

i) What role do alliance portfolios play in the development of dynamic capabilities within healthcare firms?
ii) Do the resulting dynamic capabilities reside within and/or between firms?

Research Aim: To explore and examine the role of a firm's alliance portfolio in the development of dynamic capabilities of innovation and commercialisation.

Research Objectives:

i. To examine the nature of the relationship between securing alliance partners that excel in the capabilities of innovation and/or commercialisation and the associated impact and transference to the hub/focal-firm (i.e. resource cognition);
ii. To examine managers' perspectives of engagement within the alliance portfolio and the resulting benefits, costs and contributions of such involvement;

iii. To explore the overall impact, and effectiveness of such alliance portfolios in building/providing/establishing the capabilities of innovation and commercialisation within the hub/focal-firm;

iv. To explore if and how the complement of alliance portfolio partners change over time to support the vision/strategy of innovation and commercialisation within the hub/focal-firm.

CHAPTER 8 - RESEARCH SETTING

The Michener Institute for Applied Health Sciences (Michener) is a post-secondary educational institution dedicated to the advancement of the applied-health science professions, such as nuclear medicine, radiation-therapy, radiological-technology, medical laboratory science, advanced imaging (e.g. CT/MRI/Ultrasound, etc.) and genetics technology. Established in 1958, Michener has fulfilled its mission within a not-for profit funding model, receiving approximately two-thirds (2/3) of annual revenues from the Ministry of Health & Long-Term Care, the government agency responsible for health-services within the Province of Ontario. Increasingly, non-governmental revenue sources, including those resulting from commercialisation efforts, have become a critical priority in securing Michener's financial and strategic outlook. As government funding sources become constrained to the rate of inflation, the commercialisation of organisational assets such as intellectual property and the spare capacity of Michener's physical space provide an opportunity to offset expenditures outside the base-operating costs required to fulfil academic needs. Core strategic activities such as innovation, applied research, curriculum redesign and advancement are traditionally outside of this base-operating budget, and thus require contributions from non-traditional (non-governmental) funding sources.

In addition to the above operating resource challenges, the disciplines of the applied health sciences tend to be an extremely "capital-intensive". More specifically, in order to provide students an authentic learning environment, clinical capital assets such as fully functional CT-scanners, liner-accelerators, gamma-cameras, and digital platforms are employed. With these assets costing anywhere from $0.5-$5.5 million per platform, this represents a further (capital) resource gap, insofar as Michener does not have a dedicated capital asset replacement commitment fund. The gap between current operating-revenue sources/contributions, combined with the evolving state of Michener's capital assets necessitate the advancement of commercialisation efforts as a means to accomplish these mega-end objectives, so long as such activities are related to Michener's core business (education within the applied health sciences), as not to jeopardise Michener's non-profit status.

Michener has cultivated a distinct, multi-industrial alliance portfolio including alliances with approximately 155 clinical organisations, approximately 30 private vendor

relationships, and approximately 3 academic affiliation agreements. The intent of the collaborative network is to cultivate, support and encourage the development of successful, relevant healthcare practitioners (graduates), supported through the insights, resources, and opportunities provided through the network environment. From a network boundary perspective, each of the 155 clinical partners has completed a formal clinical affiliation agreement with Michener; similarly each academic partner has completed either a formal alliance or affiliation agreement specifying the relevant terms and conditions. The private-vendor alliances generally advance in an alternative formal agreement process. From the initial point of interest, Michener and the private-vendor traditionally produce a Non-Disclosure Agreement (NDA), and/or a Memorandum of Understanding/Agreement (MOU/MOA), with the intent to outline confidentiality and confirm the areas of potential collaboration, respectively. If, after this review period, a formal alliance is desired, typically a formal agreement (whether it be an "Alliance Agreement", "Purchase and License Agreement", or some other deliverable) will be developed and signed by both parties. These documents not only offer a rich source of information and insight as to the initial scope, goals and intentions of these alliance relationships from the embryonic stage, but they also provide an establishment of confidentiality and support for the research program aims and objectives to be pursued.

As the Vice President, Operations (VP-O) of the Michener Institute, I have been directly involved in the establishment of the majority of the private-vendor alliances. In my current capacity as VP-O, I am the leader of the Business Development Team, charged with product/service innovations and commercialisation efforts. Given this capacity, I have access to a wealth of historical/contextual documents, agreements and deliverables, as well as personal relationships with the key interview stakeholders. Given the state of the literature, combined with the opportunity to complete a very deep case study (Yin, 2009) of Michener's associated alliance portfolio (that extends into immediate network participants) lends this research design to be particularly attractive.

While my previous and current roles act as an enabler in accessing critical documents and resources, the issue of researcher bias is recognised as a potential issue, especially in regards to completing any required follow-up interviews (see below for proposed methodologies). While recognising this risk, the researcher believes the scope and degree of information received from respondents will be representative of respondent's true perspectives, given the tenure and maturity of the selected alliance portfolio

partners. Ultimately, the private-vendor partners within Michener's alliance portfolio have been chosen precisely because of their direct involvement in collaborative innovation and commercialisation with Michener. The success of these relationships resides on open, honest and authentic communication, of which this research program is an extension thereof. To contribute towards this goal of authenticity, the researcher will open each interview session with a verbal acknowledgement of the potential bias, and recognition of the intent of the interview, and confirmation of the state of trust within the relationship, and of overall/absolute standard of confidentiality. The triangulation of multiple methodological approaches and data collection methods also contributes towards the overall validity and general corroboration of data findings and insights.

CHAPTER 9 - RESEARCH METHODOLOGY

9.1 INTRODUCTION

In assessing an appropriate research methodology approach, reference to the research question and aim are critical in determining an appropriate choice/application. Given the state of the literature pertaining to the development of dynamic capabilities within alliance portfolios is in early development, and considering the exploratory nature of the research question itself, a phenomenological (qualitative), rather than positivist (quantitative) approach is most appropriate. Further, given the emphasis of dynamic capability development, manager's perceptions, and the inter-related concepts of change, decision-making, and the unique nature of the cases, an inductive exploratory case study approach will be employed.

9.2 GROUNDED THEORY METHODOLOGY

The methodology applied within this research program is a grounded theory approach (Corbin and Strauss, 2008; Suddaby, 2006), leveraging the specific methods of archival analysis, participant observation/participation, and qualitative interviews within a case study context (Yin, 2009; Eisenhardt, 1989). In describing grounded theory, and as a means of aligning the triangulated data methods outlined above, Suddaby (2006) states "scientific truth results both from the act of observation and the emerging consensus within a community of observers as they make sense of what they have observed (p. 633)." Further, Suddaby (2006) convincingly posits what grounded theory is not, including (summarised from pp. 634-640):

i) An excuse to ignore the literature;
ii) Presentation of raw data;
iii) Theory testing, content analysis, or word counts;
iv) Simply a routine application of formulaic techniques to data;
v) Perfect;
vi) Easy; or
vii) An excuse for the absence of methodology.

These insights (Suddaby, 2006), in alignment with Corbin and Strauss (2008) and Eisenhardt (1989) inform the grounded theory methodology as applied within this research program. The next section will outline the specific methods of analysis

including archival analysis, participant observation/involvement, and un/semi-structured interviews within a case study approach.

9.3 CASE STUDY APPROACH & OTHER SPECIFIC METHODS

The choice in case study approach in exploring the development of dynamic capabilities is well established (Teece, 2012; Danneels, 2011), specifically within the context of alliance portfolios (van Raak et. al 2001; Araujo 1998; Provan 1995; Eisenhardt 1989). The methodological approach is further justified in considering the maturation stage of the literature pertaining to dynamic capabilities. More specifically, Kraatz and Zajac (2001) suggest that "while the concept of dynamic capabilities is appealing, it is a rather vague and elusive one which has thus far proven largely resistant to observation and measurement." As such, Barreto (2010) suggests that given the multi-dimensional approach in defining dynamic capabilities, the case study approach is most appropriate (p. 653).

In justifying the case study approach Yin (2009) explains, "A case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (p. 18)." This context as explained and illustrated by Yin (2009) accurately reflects the current context, reality and focus of this specific research program. Yin (2009) further proposes that the case study approach is most appropriate in research environments where:

i) "how" and/or "why questions are considered;
ii) the researcher has little to no control over events; and,
iii) the focus of the research program is on contemporary examination within an applied ("real-life") context (p. 2).

Broadly, Yin (2009) explains the case study approach is appropriate when trying to understand and explain "complex social phenomenon (p. 4)." Stake (1995) provides further support for a qualitative, case-based approach stating that "in qualitative studies, research questions typically orient to cases or phenomena, seeking patterns of unanticipated as well as expected relationships (p. 41)", which again, reflects the context, intent and focus of this research program. The utilisation/application of the case study approach is established in researching the development of dynamic

capabilities of commercialisation and innovation in high-velocity environments (Aarikka-Stenroos and Sandberg, 2009; Danneels, 2011; Snow, Fjeldstad, Lettl and Miles, 2011). Eisenhardt (1989) explains that case studies can be descriptive, testing or generative in their intent. While these intents are not necessarily mutually exclusive (insofar as the generation of a theory rests on the descriptive nature of the case study), the aim of this research program is on the generation of an applied theory leading to the development of a conceptual framework. These insights capture the core challenge of this research program. The effectiveness of establishing dynamic capabilities such as innovation and commercialisation cannot be separated from the role and experiential involvement and impact of participating within an alliance portfolio. Eisenhardt (1989) provides a definitive process of defining the research question; selecting case studies based on theoretical basis; leveraging multiple data collection methods; the integration of grounded theory techniques to collect, analyse and drive the subsequent findings. Within this definitive process lies the integration of other methods (namely those of Corbin and Strauss, 2008; including archival analysis, participant observation/involvement, and un/semi-structured interviews), outlined within the proceeding chapters titled "Chapter 11 - Sample Design" and "Chapter 12 - Data Collection & Analysis – Case Study Protocol."

9.4 LEVELS OF ANALYSIS

The clarification of levels in examining and exploring dynamic capabilities is critical from a theoretical development and applied research perspective (Kay, 2010). House, Rousseau and Thomas-Hunt (1995) posit the incorporation of both micro and macro perspectives, into a 'meso' research approach, where 'meso' is defined as "synthesising micro and macro organisational processes (p. 73)." Rousseau and Hunt (1994) state that "the micro and macro distinction is an oversimplification, suited to an era where organisations were assumed to be relatively static and persons relatively homogenous (p. 15)." Rather than developing theory and research that strictly micro or macro in approach, House et. al. (1995) posit a 'meso' approach appropriate where, in the context of this research program, "one or more levels concern organisational processes or variables (p. 73)."

While the unit of analysis (the examination and exploration of the establishment of dynamic capability of innovation and commercialisation within inter-organisational relationships) will remain consistent throughout the research program, the research

program will include multiple levels of analysis (Rousseau et. al., 1994). As a means to examine and explore the role of the alliance portfolio in establishing dynamic capabilities between and within firms, multiple levels of analysis will be pursued, including the perceptions of individual managers (micro-level); as well as the examination in establishing dynamic capabilities within dyadic alliance relationships as represented within Michener's alliance portfolio (micro-level). This micro-level of analysis (of Michener's alliance relationships with both "Org A" and "Org B") is critical to the exploration and examination of specific factors (resulting relationships, and interdependencies therein) as related to the establishment of dynamic capabilities between and amongst firms. These experiences, as reflected and identified as representative alliance relationships within Michener's alliance portfolio, ultimately led to 'Emerging Themes' #1, #2 and #3 as developed in Chapter 16 – Results: Initial Analysis.

In order to incorporate a macro-level perspective, the level of analysis transitioned from individual alliance relationships within Michener's alliance portfolio (e.g. "Org A" and "Org B"), to that of the alliance portfolio itself (Rousseau et. al., 1994). While the unit of analysis remains consistent as the exploration and examination of establishing dynamic capability, the shift in level of analysis from individual alliance relationships represented within Michener's alliance portfolio, to that of the alliance portfolio itself, enabled the candidate to explore portfolio-specific insights. More specifically, at the macro-level of analysis of the alliance portfolio, the candidate was able to explore insights related to the management, evolution, costs and benefits of the alliance portfolio (in establishing dynamic capability) (Wassmer, 2010). Respondents were informed of the transition of levels within interviews, and reference to the diagrammatic illustration of Michener's alliance portfolio (see Figure 13) leveraged to ensure consistency of reference and intent. The results of this macro-level research perspective are summarised in 'Emerging Theme #4' within Chapter 16 – Results: Initial Analysis.

In referencing the incorporation of both "micro" and "macro" levels of analysis, House et. al. (1995) posit that the employment of "meso perspectives is capable of generating unique insights and knowledge about organisational behaviour, over and above that contributed by micro and macro level research and theory (p. 85)." While developed independently as either 'micro-level' or 'macro-level' themes within Chapter 16 – Results: Initial Analysis, a 'meso-level' perspective is reflected in proceeding chapters,

including Chapter 17 – Conclusions; Chapter 18 – Contributions; and Chapter 19 – Generalisations (Rousseau et. al., 1994).

Further clarification of specific and synthesised levels of analysis will be provided (where applied) in proceeding chapters (e.g. Chapter 16 – Results: Initial Analysis).

CHAPTER 10 - SELECTION OF CASE STUDIES

The selection of case studies are as follows:

Case Selection

Case #1 –Michener & Organisation "A" ("Org A")

The selection of this interorganisational relationship was made based on the following factors/context:

- Michener and Organisation "A" sought to create an alliance that would result in the development of a dedicated simulation centre within the applied health sciences, with resulting dynamic capabilities being established in the i) innovation/commercialisation of curricular assets/material within the applied health science disciplines; and ii) commercialisation of a 25,000 sq. foot healthcare simulation centre
- This is a long-standing case study which has operated over ~3.5-years; is rich in both records (contracts; emails; etc.) and institutional experience (involvement of many organisational leaders)

Case #2 - Michener & Organisation "B" (Org "B")

The selection of this interorganisational relationship was made based on the following factors/context:

- Michener and Organisation "B" sought to create an alliance that would result in the innovative development of two unique (never before designed/developed) linear accelerator units which would require distinct hardware/software and workflow engines to reflect an academic (as apposed to a clinical) environment
- The design/development process, completed over ~1-year period, involved extensive meetings with Michener's subject matter experts (faculty; executives; staff) and Organisation "B" complement of engineers and support staff to innovate important solutions surrounding hardware (e.g. KV beam; installation procedures; etc.) and software (e.g. emulation of treatment process)
- This is a long-standing case study which has operated over ~3.5-years; is rich in both records (contracts; emails; etc.) and institutional experience (involvement

of many organisational leaders) and artefacts (e.g. linac units themselves; research posters; etc.)

The anticipated interviewee list corresponding to each case and the resulting ethics review process will be detailed in proceeding sections.

The unit of analysis is at the pursuit/instance of establishing dynamic capabilities in commercialisation/innovation itself, as contextualised and represented through the interorganisational relationship between an external firm and Michener, representing a theoretical sample of Michener's alliance portfolio complement.

Cross-Case Analysis

While the employment of the exploratory case study approach has been justified above, the application requires further specificity in regards to the form, type and structure. With the unit of analysis representing specific instance of commercialisation/innovation within the context of Michener's egocentric alliance portfolio (Baum et. al., 2000), the author intends to select an in-depth case study that represents a "successful instance in developing dynamic capability of innovation and commercialisation", and a subsequent in-depth case study that explores an "unsuccessful instance in developing dynamic capability of innovation and commercialisation", representing a cross-case, multi-case study comparative approach. Yin (2009) summarises the benefits of a multi-case design stating:

> "the evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust (Herriott & Firestone, 1983, as cited by Yin, 2009) (p. 53)."

The process of comparing cases with similar dependent variables and exploring/explaining independent variables is referred to as the comparative-case study approach (Yin, 2009; Dion, 1998; Lijphart, 1975). There is an established practice in utilising a cross case comparison approach within high velocity environments (which are characterised by the need to successfully innovate and commercialise) with the goal of examining critical concepts/themes (including management decision making)(Bourgeois & Eisenhardt, 1988). Eisenhardt (1989) further supports the cross case approach and ability to explore cross case patterns/themes, stating:

> "Overall, the idea behind these cross-case searching tactics is to force investigators to go beyond initial impressions, especially through the use of structured and diverse lenses on the data…cross-case searching tactics enhance the probability that the investigators will capture the novel findings which may exist in the data (p. 541)."

Yin (2009) further outlines the case study exploration process, where once the cases have been selected based on a theoretical sample (as determined by the dependent variable), the individual case examination is completed and a summary case report is completed. The two-cases representing differing dependent variables are then analysed "cross-case" to identify common/differing themes (independent variables), providing critical insights and conclusions (Yin, 2009; Lijphart, 1975). From an outcome perspective, one potential end deliverable is a conclusion report for the "successful instances/pursuit", and a separate conclusion report for "unsuccessful instances/pursuit" (representing alternative dependent variables).

The second and final analysis process involves comparing the conclusion reports, ultimately developing a cross-case comparison amongst independent variables based on the dependent variables (outcomes). The intent of this final cross-case comparison analysis is to explore critical concepts/themes (initially through content analysis but ultimately teasing out the core concepts and themes within the context of the theoretical propositions as represented/reflected by the research question and objectives) (Yin, 2009; Corbin & Strauss, 2008). While outside the scope of this research program, future research should focus on this methodological approach in looking to explain (rather than explore) the phenomenon between and among alliance portfolios (Yin, 2009).

The cross-comparative case approach has experienced criticism, generally surrounding the issues of i) finding truly comparable cases (Lijphart, 1975) and ii) case selection bias (Dion, 1998). In regards to comparable cases, Lijphart (1975) recommends that finding multiple cases that have the same dependent variable and hold constant many non-essential (outside research scope) independent variables allow the research the best opportunity for in-depth assessment of the relevant variables. In response to this criticism, the central benefit of choosing all cases from Michener's egocentric alliance portfolio (Baum et. al., 2000) allows the candidate to hold constant many independent variables such as management team involved in each case; general organisational

resources available to each case; Michener's culture; technological infrastructure, etc. Finally, in response to the claim of case selection bias, Dion (1998) posits that the issue of selection bias is mitigated through the framing of the dependent-independent variable relationship as a necessary, not sufficient condition. In the context of this research program, the intent is to explore the necessary conditions that lead to a successful and unsuccessful (dependent variable) outcome, and thereby analyse the common and differing conditions (independent variables) between and amongst the cases.

CHAPTER 11 - SAMPLE DESIGN

11.1 SELECTION & APPLICATION OF A THEORETICAL SAMPLE

Corbin and Strauss (2008) define theoretical sampling as "a method of data collection based on concepts/themes derived from the data", with the purpose of collecting "data from places, people, and events that will maximise opportunities to develop concepts in terms of their properties and dimensions, uncover variations, and identify relationships between concepts (p.143)." As identified in the preceding section, using a theoretical sample based on differing dependent variables with the unit of analysis is at the establishment of dynamic capabilities in commercialisation/innovation within inter-organisational relationships will enable an iterative cross-case comparison approach to be employed.

From a relationship management perspective, many alliance/partner agreements require regular (e.g. quarterly) formal/informal reports, assessments and/or updates, to ensure the ongoing effectiveness and desired results of the relationship. Within the context of the terms and conditions outlined within the ethics section below, the candidate intends to leverage these reviews not only as a historical data source, but also as an opportunity to conduct and complete the aims and objectives of this research program. The focus of network and alliance effectiveness integrates well into existing agreements and overall intent, goals and objectives of these collaborative relationships. All partners share (to a significant degree) the collective intent of advancing collaborative innovation and commercialisation objectives within the healthcare industry. In alignment with a grounded theory approach, these participants (and resulting theoretical sample) have been chosen based on their respective ability to comment on the theoretical aims and objectives of this research program, as apposed to a random sample, which would be appropriate with a positivist approach. Within the context and in support of the aims and objectives of this research proposal, Corbin and Strauss (2008) support a theoretical sample approach in suggesting it is "especially important when studying new or unchartered areas because it allows for discovery" (p. 145). Additionally, Barreto (2010) states "future studies should use not only the focal firm's managers as respondents but also third parties (e.g., financial analysts) to mitigate potential bias in the responses from the former group."

CHAPTER 12 - DATA COLLECTION & ANALYSIS: CASE STUDY PROTOCOL

12.1 INTRODUCTION

Given the explorative, iterative nature of the case study approach within this research program, and given the unit of analysis is at the pursuit/instance of establishing dynamic capabilities of commercialisation/innovation via the alliance portfolio, a grounded theory approach is appropriate.

The implications to this approach as it relates to the data collection and analysis processes are significant. First, the interplay between the data collection and the data analysis phases are tightly integrated, whereby the analysis of data begins at the conclusion of the very first (unstructured) interview. The key discoveries of this first interview, described by Corbin and Strauss (2008) as "concepts and themes", result in "concepts derived from the data during analysis and questions about those concepts drive the next round of data collection (p. 144)." Thus, the data collection and data analysis processes build, inform and compound on each other until the core concepts and themes of the research program have been (largely) represented. Corbin and Strauss (2008) refer to this end-point as "saturation (p. 148)." To assist in the development of this rich, evolving interplay between data collection and analysis, the development of "memos" are recommended as a means to "chew, digest and feel" the core concepts and themes emerging from the data (Corbin and Strauss, 2008). Eisenhardt (1989) supports this precise approach through the creation of "field notes", which are described as "an ongoing stream-of-consciousness commentary about what is happening in the research, involving both observation and analysis – preferably separated from one another (p. 539)." The evolution of the concepts, themes combined with the interpretation of these insights by the research candidate result in the "grounding" of the descriptive theory.

In regards to the methods identified within the relevant literature base, un/semi-structured interviews and/or focus groups (Araujo 1998; Morrissey et al. 1985, 1994, 1997; Fried et al. 1998; Provan et al. 1995; van Raak 2001; Eisenhardt, 1989) were employed as the predominant data collection method. These methods assessed both the organisational/participant and alliance portfolio units of analysis (Provan and Milward,

2002). In following the intent of the grounded theory approach, the candidate leveraged core concepts/themes from the existing literature base to clarify the initial set of terms to be discussed and developed throughout the initial set of un/semi-structured interviews. Corbin and Strauss (2008) identify this as an appropriate approach, insofar as the initial theory constructs are modified and/or discarded as discovered/advanced throughout the interview process.

Additional methods as supported by Yin (2009) and Stake (1995), such as document review, historical/archival analysis, participant-observation/engagement, were employed, albeit secondarily to the interview method. Resulting from the concepts/themes emanating from the independent interviews and focus groups, additional interviews/focus groups were employed to provide additional clarity of the concepts/themes in relation to the research objectives.

The candidate experienced a rich, fluid interplay between data collection, data analysis, the development of (interpretive, directive, reflective) memos, and the constant development/formation of different visual interpretations of the conceptual (theoretical) framework, of which is the core, applied goal of the research program (Corbin and Strauss, 2008; Danneels, 2011). Miles and Huberman (1994) support this approach, in proposing, "Conceptual frameworks are best done graphically, rather than in the text. Having to get the entire framework on a single page obliges you to specify the bins that hold the discrete phenomena, to map likely relationships, to divide the variables that are conceptually or functionally distinct, and to work with all of the information at once (p. 22)". Finally, the issue of obtaining valid and reliable information and responses on sensitive topics remains a challenge for many research fields. Einarsen and Valand (2010) suggest that in order to mitigate the risks as perceived by the respondent in providing sensitive information, an assessment of each situation and a designed approach is ultimately required. More specifically, Einarsen and Valand (2010) recommend a rich interplay of collection methods such as interviews; participant observations and/or participation as a means to detect, identify and confirm sensitive topics. The overall research strategy and resulting methodology as described above clearly support a process whereby sensitive topics and insights can and will be explored.

The candidate utilised a series of open-ended questions within the un/semi-structured interview, ultimately related to the objectives of the research program and the major themes and findings outlined within the existing literature.
All respondents included within the individual (solo) and focus groups interviews were required to complete/sign the Informed Consent Form (included in Appendix A) as part of the formal ethics review submission/process. The purpose of each form is to clearly articulate the aim of the research program, the rights of each individual participant, and to confirm confidentiality. Given the complexity and degree of contemplation required to assess the objectives related to the development of dynamic capability, the researcher also provided respondents an opportunity to reflect on these core issues as well as an indication to the scope of questions well before the interview session itself.

To corroborate the central concepts and themes resulting from the analysis phase, the candidate employed two techniques. First, the candidate used the reporting functionality included within data analysis software program to compare/contrast the objective terms/phrases/themes with the central phrases/themes developed through the candidates' reflection memos. Secondly, at the conclusion of the interviews, the candidate randomly selected a respondent to review a series of random (anonymous) interview responses with a checklist of themes, with an equal amount aligned with the candidates developed themes, and an equal amount unrelated. The respondent was requested to read the random anonymous interview response and "check-off" those themes they deemed most relevant/appropriate.

12.2 CASE STUDY PROTOCOL

This section is dedicated to clarifying the specific mechanics involved in the data collection and analysis phases within the case study approach. The following chapter represents the structural intent (Case Study Protocol) of the case study approach as envisioned before the start of the data collection/analysis process.

In reviewing the Case Study Protocol, the notion of independent and dependent variables may seem out of place in the context of a grounded theory approach. The candidate recognises this balance in methodological approach, insofar as the case study protocol and the resulting (anticipated) interview lists and (anticipated) questions

provided an initial framework to envision, and ultimately start the data collection and analysis phases (through the first set of interviews). As the interview process became more established, the candidate transitioned into a much more fluid interplay of data collection and analysis, including the pursuit/clarification of concepts, themes, and the associated relationships within the interviews themselves, reflecting a more traditional grounded theory approach.

Step #1 – Establishing Clarity of Terms & Exploring the Instance, Development of Dynamic Capability

Aim – The aim of this stage was to confirm with all respondents the key terms/concepts involved in the discussion (e.g. alliance portfolio; innovation; commercialisation) and to achieve a common recognition of the identification and existence of dynamic capabilities within each case.

Methods – In advance of the interview, email solo/focus group participants were provided a general description of the intent of the interview and provided definitions of key terms/phrases/concepts (e.g. innovation; commercialisation; alliance portfolio; dynamic capability – Please see Appendix D). Providing a common set of definitions allowed participants the opportunity to clarify the intent of these terms/phrases/concepts and advance the discussion to recognise an instance where the development of a dynamic capability has/has not potentially occurred. The list of definitions also provided a useful and consistent resource during the interview process as a means to clarify the definition/intent of key terms.

Proposed Participants – The establishment of clarity of key terms was essential to the essence/pursuit of the research aim of this research program. As such, the interview questions were applied to all internal/external respondents in both cases before proceeding to later stage inquiry.

Anticipated Interviewee List for Case #1 – Michener & Organisation "A"

- President & CEO – Michener – Solo
- Vice-President, Academic – Michener – Solo
- Group of Sr. Michener Leaders – Focus Group
    - Director, Finance

    - Sr. Director, Communications, Public Relations & Advancement
    - Manager, Human Resources
    - Academic Program Chair(s)
- Group of Leaders from "Organisation A" – Focus Group
    - Sr. Project Manager (for this initiative)
    - Sr. Director, Global Sales & Marketing

Anticipated Interviewee List for Case #2 – Michener & Organisation "B"

- President & CEO – Michener – Solo
- Vice-President, Academic – Michener – Solo
- Group of Michener Leaders/Faculty – Focus Group
    - Sr. Director, Communications, Public Relations & Advancement
    - Academic Program Chair(s)
    - Sr. Project Lead
    - Former Chair, Radiation Therapy
    - Lead Faculty (2) involved in installation/implementation
- Group of Leaders from "Organisation B" – Focus Group
    - Vice-President & General Manager
    - Director, Business Development
    - Director, Professional Services
    - Relevant Engineering Staff

Potential Interview Questions:

➢ Based on the pre-circulated set of definitions of key terms/concepts, how well understood to you feel these definitions are within your respective organisation? Explain.
➢ How would you define/describe the core business of your organisation?
➢ Would you consider your organisation residing within a knowledge-intensive industry? If so, based on your experience, has your organisation remained current/competitive within this environment? Have alliance partners contributed towards this end?

➢ Generally, how do you perceive your organisations engagement with alliance partners contributing towards its core business and resulting developments (e.g. curriculum; applied research; instructional capital development; etc.)? Based on your above reflections, were these collaborative ventures a positive or negative contribution towards your organisations core business?

The intent of the four questions above was to establish an understanding of critical terms/concepts that are relevant to this research program. These questions also aim to confirm the high-velocity environment in which the respective organisations operate, and where the engagement of an alliance portfolio occurs and for what purpose.

➢ What would you perceive as your organisations most valuable resource(s)? What resources, abilities, experiences and/or reputation does your organisation offer potential alliance partners? How has this changed over time (e.g. past 2-3 years)? Would you also describe these resources as rare and/or critical to our organisational success? Could these resources be easily copied by other organisations?
➢ Within the experience of this case, has this alliance resulted in the development of your organisations respective ability to innovate differently? Explain.
➢ Within the experience of this case, has this alliance resulted in the development of your organisations respective ability to commercialise differently? Explain.

The intent of the three questions above was to establish what a dynamic capability is, where it may exist and if the participant believes it has occurred (developed) within the specific case.

Triangulation of Data – There were several other sources of data to explore the understanding/application of these terms including:

- Minutes from alliance meetings dealing with strategic/operational issues

- Formal contracts complete with objectives reflecting specific capabilities
- Participant (candidate) involvement/observation of past/current events relating to both cases

The overall intent of Step 1 within the Case Study Protocol was to inductively advance the research question/aim by establishing/comparing responses in the context of a successful/unsuccessful case related to the first two research objectives:

i. To determine the nature of the relationship between securing alliance partners that excel in the capabilities of innovation and/or commercialisation and the associated impact and transference to the hub/focal-firm (i.e. resource cognition);
ii. To examine managers' perspectives of engagement within the alliance portfolio and the resulting benefits, costs and contributions of such involvement;

Step #2 – Explore, Compare & Contrast the Variables – Internal Perspective

Aim – While certainly not mutually exclusive, Step #2 aimed to build from the responses of Step #1 to further advance the research aim/question in comparing responses in the context of each case related to the final two objectives:

iii) To examine the overall impact, and effectiveness of such alliance portfolios in building/providing/establishing the capabilities of innovation and commercialisation within the hub/focal-firm;
iv) To determine if and how the complement of alliance partners change over time to support the vision/strategy of innovation and commercialisation within the hub/focal-firm, and specifically how past experience with alliance partners affect future partner selection (i.e. building of alliance competency and partner selection).

Methods– Same as described in Step #1.

Proposed Participants – Will be limited to the Michener interviewee schedule (from both cases) identified in Step #1.

Potential Interview Questions:

➢ How would you describe the effectiveness of Michener in seeking out alliance partners that support/advance its ability to innovate and/or diversify revenue sources (commercialisation)?
➢ What, if any, have been the central benefits in Michener's engagement with external alliance partners?
➢ Are there costs associated with Michener engaging in external alliances? Please explain.
➢ How would you describe Michener's ability to succeed in alliances? How has this changed over time (e.g. past 2-3 years)?
➢ If possible, tell a story/anecdote of a particular alliance/set of alliances that you would consider a success. What made it successful?
➢ If possible, tell a story/ anecdote of a particular alliance/set of alliances that you would consider unsuccessful. What made it unsuccessful? What contributed towards it being unsuccessful?
➢ Based on the reflections above, what type of alliance partners should Michener seek out in the future? What are the specific qualities/capabilities? Why?
➢ Based on your experience, what has Michener learned to do differently through its past and current portfolio of alliances? Based on your answer, does the ability to do these new things reside with Michener, or does it require the other alliance partner(s) to facilitate?

The intent of these questions was to explore the internal respondent perceptions of Michener's involvement to-date with its respective alliance portfolio in the context to the terms/concepts identified/developed in Step #1.

➢ With the context of this case, how would you describe the process by which both organisations came together to develop an ability/capability to innovate/commercialise? Would you describe this process as a success or failure? If deemed to be successful, was one firm responsible for the ability/capability to

innovate/commercialise or were both firms required (necessary) for this capability to exist?
➢ In the context of the current case, what do you believe made Organisation "A"/"B" an attractive alliance partner? What skills, resources, relationships and/or abilities were especially attractive in our decision to partner with this organisation?
➢ What do you believe the end strategic goal was/is in partnering with Organisation "A"/"B"? Could you describe within the context of what was to be designed/developed and commercialised?
➢ How would you describe the relationship at the genesis point? Describe the maturation process.
➢ Would you describe the results of this alliance relationship as successful or unsuccessful? Why?
➢ Do you believe the originating alliance objectives were clear? Were they achieved? If so, what evidence would you offer that these results have been achieved?

The intent of the Step #2 questions was to explore, through a variety of focused and open-ended questions the independent variables experienced in each case. While the outlining of the above questions suggests a mechanical approach, it is worth noting that the candidate recognises the importance of identifying key concepts and emerging themes (Corbin & Strauss, 2008) and the intent of the grounded theory approach brings which is to further explore such concepts/themes in proceeding interviews/focus groups. Secondly, from a cross-case comparison standpoint, the respondent's perspectives began influencing Level 3 questions, which Yin (2009) describes as "questions asked of the pattern of findings across multiple cases (p. 87)." Step #2 and #3 are indented to explore these patterns further.

Triangulation of Data - There were several other sources of data outside of the intended interviews/focus groups to explore the understanding/application of these concepts/themes including:

- Minutes from alliance meetings dealing with strategic/operational issues
- Formal contracts complete with objectives reflecting specific capabilities

- Participant (candidate) involvement/observation of past/current events relating to both cases
- Artefacts (installed capital infrastructure; conference posters; etc.)

Step #3 – Explore, Compare & Contrast the Specific Independent Variables – External Perspective

Aim: Similar to Step #2, Step #3 aimed to engage the external participants to explore the independent variables experienced within each case. As reflected in the literature, from a research design perspective in examining interorganisational networks, it is critical that the external partners are afforded an opportunity to provide their respective perspectives (Yin, 2009).

Methods: Same as described in Step #1, #2 above.

Proposed Participants – Was limited to the external respondents (form both Organisation "A" & "B") identified in Step #1.

Potential Interview Questions:

➢ What was your end strategic goal in partnering with Michener? Could you describe within the context of what was to be designed/developed and commercialised?
➢ What made Michener an attractive alliance partner? What skills, resources, relationships and/or abilities were especially attractive to your decision to partner with Michener? How did you anticipate these factors contributing towards your end goal?
➢ How would you describe the relationship at the genesis point? Describe the maturation process.
➢ Has your organisation created new abilities/capabilities as a result of this relationship? Explain. If so, have these new abilities/capabilities contributed towards your core business/objectives? Describe.
➢ Would you describe the results of this alliance relationship as successful or unsuccessful? Why?
➢ Do you believe the originating alliance objectives were clear? Were they

achieved? If so, what evidence would you offer that these results have been achieved?

Triangulation of Data - There were several other sources of data outside of the intended interviews/focus groups to explore the understanding/application of these concepts/themes including:

- Minutes from alliance meetings dealing with strategic/operational issues
- Formal contracts complete with objectives reflecting specific capabilities
- Participant (candidate) involvement/observation of past/current events relating to both cases
- Artefacts (installed linac units; conference posters; etc.)

12.3 SAFETY CONSIDERATIONS

As this is not a clinical research project, safety considerations have been included/reflected within the “Ethics” section below.

CHAPTER 13 - ETHICAL REVIEW & CONSIDERATIONS

As a post-secondary educational institution specialising in the applied health sciences, The Michener Institute has established a formal and robust Research Ethics Board (REB). As an employee of this organisation, it has been established that this research program was required to complete the formal ethics review process before proceeding to the data collection process with human subjects and organisational data.

"The Research Ethics Board (REB) is a subgroup of the Institutional Research Review Committee (IRRC) responsible for assuring that all research carried out or in collaboration with the Michener Institute meets current scientific, regulatory and ethical standards for the protection of human research participants. The Michener REB has two main functions:

1. Review proposed study submissions for science and ethics;
2. Promote education pertaining to research ethics

The REB ensures that all researchers must follow the stipulations outlined in the Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans, 1998 (with 2000, 2002 updates). All research candidates must also (and subsequently did) complete the Canadian Research Ethics Course – TCPS 2 CORE[4].

The Michener REB submission requirements include:

- Completed application form
- Current Research Protocol (modified version template of this research program methodology section)[5]
- Investigator's current Curriculum Vitae
- Informed Consent Forms (ICF) on Michener letterhead
- Approval from Chair/Head
- Other (e.g. interview scripts)
- Ethics
- Budget"[6]

[4] http://tcps2core.ca/welcome
[5] Template reference: www.who.int/rpc/research_ethics/format_rp/en/index.html
[6] http://my.michener.ca/about/res/academic_res.php

All respondents included within the individual (solo) and focus groups interviews were required to complete the Informed Consent Form, included as Appendix A within this research program. The purpose of each form is to clearly articulate the aim of the research program, the rights of each individual participant, and to assure confidentiality. Given the complexity and degree of contemplation required to assess the objectives related to the development of dynamic capability, the researcher also provided the respondents an opportunity to reflect on these core issues as well as an indication to the scope of questions well before the interview session itself. Additionally, included within the Ethics Review Submission, the candidate received Letters of Support approving organisational support and participation in this research program from senior leaders/executives at "Org A", "Org B", and Michener (the specific letters will not be included as an appendix to this dissertation as a means to uphold the confidentiality in identity of both "Org A" and "Org B").

This research program was granted ethics approval in February 2012.

While the majority of the recorded interviews transcription process was completed directly by the candidate, where additional transcription resources were utilised, individuals will be required to complete/sign a Confidentiality Agreement confirming that any related research data will be deleted from the computer post-transcription; that no copies of the information will be made; that no data shall be transferred to third parties; that the materials of the interviews are to be discussed solely with the research candidate; and that all materials included and related to this research program shall remain strictly confidential. Lastly, as the intent throughout this research program has been to maintain the confidential identity of both respective case study organisations ("Org A" and "Org B"), any/all inclusions of images related to the description/explanation/exploration of each case has been reviewed/confirmed by each organisation. Where unique organisational identifiers and/or logos were included in the original images, image modification software was utilised to "blur-out" the affected area in order to maintain confidentiality.

CHAPTER 14 - DATA MANAGEMENT & STATISTICAL ANALYSIS

14.1 MECHANICS OF ANALYTICAL PROCESS: PRE-DATA COLLECTION PLAN

Rather than leveraging a pre-determined set of concept/theme code keys, the candidate abided by the intent of the grounded theory approach and let the data (derived from the respondents) drive the relevant codes. Once the qualitative data had been collected the data was analysed using standard content analysis. The content analysis process, as described by Patton (2002) specifically explored emerging patterns and themes of the responses, with patterns representing specific themes representing collective categories. The candidate developed a relevant coding system throughout the fieldwork phase (participant observation; historical document review; un/semi-structured interviews; and focus groups if deemed necessary) of this research program.

As an initial approach to operationalise the first phase of analysing the data (and thereby establish an appropriate data coding/tagging system) the candidate recognised the importance of "grounding" the theoretical terms such as dynamic capabilities, alliance portfolios to the existing definitions/insights as identified within the Glossary of Terms section of the literature review. This initial approach acted to identify and "ground" participant(s) responses to relevant data codes/tags and promote the advancement of emerging themes within the data, ultimately reflecting a grounded theory approach. Yin (2009) suggests that the coding/classification process is only the first step in the data analysis process; and that "developing a rich and full explanation or even good description of your case, in response to your initial "how" or "why" questions, will require much post-computer thinking and analysis on your part (p. 128)." In regards to analysing the case study data, the candidate utilised the specific techniques of cross-case synthesis and pattern matching to explore the critical concepts/themes.

To assist in identifying the relevant data codes/tags and resulting themes, the candidate utilised the NVivo 9 software package. This software package supports the advanced application/exploration of various data sources including text sources from email/contracts, and sound recordings/memos from un/semi-structured interviews. While the software enabled the candidate to manually identify segments of data to a

specific theme, the software can also act as a powerful control for bias insofar as themes can also objectively derived from the platforms analysis/reporting functionally. The concepts/themes as identified by the candidate were compared/contrasted/corroborated by the NVivo analysis.

A few points of clarification are required in regards to the sample frame and research objectives. The candidate anticipated to the best of his ability the most appropriate contacts/respondents to explore the engagement of an alliance portfolio as it relates to the development of dynamic capabilities of innovation and commercialisation. Regardless of the number and identity of all relevant participants, all subjects were treated to the same level of research ethics and personal confidentiality. Corbin and Strauss (2008) summarise the theoretical sampling approach in stating it "is not about sampling people, but concepts (p. 144)." Ultimately, in order to examine and explore the research objectives comprehensively, the candidate pursued the degree of interviews required to reach saturation of concepts (at the specific time of the research study).

14.2 THE DATA COLLECTION PHASE – A POST-IMPLEMENTATION REVIEW

In alignment to the methodology described in the literature and ethics review chapters above, the methodology followed a series of progressive stops and restarts within the processes of data collection and analysis (Corbin and Strauss, 2008). Following the integrated methodological approach of utilising a theoretical sample in a grounded theory approach, within the broader context of the case study methodology, the candidate has pursued a series of distinct (yet not completely separated) phases of the data collection/analysis process.

14.2.1 Pre-Data Collection & Analysis

As developed in the proceeding chapter, upon achieving ethical approval of the research study, the candidate accessed and reviewed a comprehensive set of archival documents related to the case study experience with both "Org A" and "Org B". The intent of this process was to re-familiarise and gain new insight/clarity as to the original strategic/contractual aims and objectives of each alliance relationship. This clarity, in terms of intent and aims at different timelines, afforded the ability for the candidate to explore rich interdependences and variables with respondents in examining both

individual and the combined case study experiences. The additional intent was to provide a contextual background chapter for the reader, outlining the characteristics of each respective alliance case to bridge the methodology and results sections within the final dissertation. This data collection and analysis process commenced between mid-February and early March, 2012.

14.2.2 First Phase of Data Collection & Analysis

The first phase, beginning March 5th to March 22nd, included the completion of 4 separate interviews with 5 unique respondents, including a Sr. Executive from Michener, 1 Former Project Manager from Case Study Organisation "A" ("Org A"); and 1 Sr. Executive and 2 Executive respondents from Case Study Organisation "B" ("Org B"). Before beginning each interview, each respondent was assured of the confidentiality clause contained within the Informed Consent Form, and the general themes of the Form were reviewed. Respondents were asked if they had any questions in regards to the Form itself or the core definitions provided before each interview. Before proceeding, respondents were asked for consent to record the interview, and signed Informed Consent Forms were obtained.

Interviews were recorded by two devices (standard mp3 recording device; and a technology called "Dropvox" which is an iPhone application that sends completed audio recordings to the candidates secure "Dropbox" cloud account). All files were converted from mp4a to mp3 files, and imported into the NVivo 9 platform. Once in NVivo 9, the audio files were transcribed into text format for coding. The candidate completed the majority of the transcription, with assistance in the transcription of a single interview.

Initial interviews were coded and initial analysis completed to explore dominant themes and concepts. The first phase of data analysis confirmed that the majority of the data centred on the macro theme of the 'alliance capability' in the context of two organisations (Michener and "Org A"; Michener and "Org B") attempting to build dynamic capabilities of innovation and commercialisation. The specific nature and placement/residence of these dynamic capabilities were also explored; so to was the concept of resource cognition amongst respondents. This phase was critical in establishing the foundation by which i) a greater depth of analysis could be explored/completed on the above themes in subsequent interviews, and; ii) more advanced themes, such as the role of the alliance capability in establishing the capability

in an alliance portfolio, as well as the dominant themes of the alliance portfolio itself could be examined.

14.2.3 Second Phase of Data Collection & Analysis

The second phase operated from approximately from April 5th to May 23rd, and resulted in 7 additional interviews, 7 respondents with 6 unique respondents being completed, resulting in a cumulative total (between Phase 1 & 2) of 11 total interviews (10 solo; 1 focus group of 3 respondents), 13 total respondents, with 11 unique respondents.

As with the previous phase, all audio files were converted to mp3 format, imported into NVivo 9, and manually transcribed into corresponding text files. The resulting interview transcripts, in alignment to the themes illustrated in the literature, formed the basis for the initial thematic categories used to code data within the software program NVivo 9. These initial thematic nodes included:

- Enablers to DC Creation
- Barriers to DC Creation
- Costs of Alliance Portfolios
- Evolution of Alliance Portfolio
- High Velocity Markets
- Bifurcation Zone
- DC Commercialisation
- DC Innovation
- DC Business Models
- Genesis of an Alliance Portfolio
- Development of DC Between Firms
- Curricular Impact via Alliances
- Strategic Impact of Alliance Portfolio
- Comp. Advantage Through Alliance Portfolios (Networks)
- Networking/Alliance Capability
- Alliance Portfolio Capability
- Resource Cognition
- Competitive Disadvantage
- Competitive Advantage

Throughout this phase, the candidate reviewed the text-based transcripts and made extensive use of research memos (Corbin and Strauss, 2008) as a means to "chew on" the data and isolate emerging themes. The creation of memos and seeking clarity from past and future respondents to advance/clarify core themes was an extraordinary valuable tool/process. This process, coupled with the application of the above nodes in coding the data, began to formalise some emerging theoretical frameworks. These diagrammatic frameworks were on occasion utilised within the interviews to quickly reference and illustrate sometimes complex, abstract concepts. To mitigate bias, key questions pertaining to the frameworks were asked before presenting the summarised diagrammatic concept. Thereafter, respondents were asked to validate and reflect on emerging concept illustrations/diagrams, and to propose any gaps/oversights they perceived as a means not only to validate, but advance the concept illustrations/diagrams.

This phase was critical to advancing the macro themes related to the alliance capability and the resulting pursuit of building dynamic capabilities of innovation and commercialisation amongst firms, and the development of initial conceptual frameworks integrating these key themes and concepts. This phase also established a firm relationship in the role of the alliance capability to establishing a capability in alliance portfolio management, and the central themes of alliance portfolio construct, evolution, alignment and impact.

14.2.4 Third Phase of Data Collection and Analysis

The third phase operated from approximately from May 23rd to June 15th, 2012, and resulted in 3 additional interviews, 4 respondents with 3 unique respondents being completed, resulting in a cumulative total (between Phase 1, 2 & 3) of 14 total interviews (12 solo; 2 focus group of 5 respondents), 17 total respondents, with 14 unique respondents.

Throughout this phase, the focus of the respondents was largely directed to the research objectives pertaining to the alliance portfolio capability in the context of creating dynamic capabilities in innovation and commercialisation. With this focus, the nodes utilised within the coding process required adaptation and advancement, with the modified set of nodes including (changes in bold):

- **Alliance Capability (promoted to distinct node)**
- **Benefits to Alliance Portfolio Engagement (new node)**
- **Transition of Alliance DC to Alliance Portfolio DC (new node)**
- **Alliance DC Role in Establishing DCs of Innovation & Commercialisation (new node)**
- **Alliance Portfolio DC Role in Establishing DCs of Innovation & Commercialisation (new node)**
    - **Melding of Multiple Alliance Portfolios Between Organisations (new sub-node)**
    - **Costs of Alliance Portfolio (new sub-node)**
- **Evolution of Alliance Portfolio (new node)**
- Enablers to DC Creation **in Alliances (clarified node)**
- Barriers to DC Creation **in Alliances (clarified node)**
- Costs of Alliance Portfolios
- Evolution of Alliance Portfolio
- High Velocity Markets
    - **Bifurcation Zone (consolidated to sub-node)**
- DC Commercialisation
    - **DC Business Models (consolidated to sub-node)**
- DC Innovation
- Genesis of an Alliance Portfolio
- Development of DC Between Firms
- Curricular Impact via Alliances
- Comp. Advantage Through Alliance Portfolios (Networks)
    - **Strategic Impact of Alliance Portfolio (consolidated to sub-node)**
    - **Competitive Advantage (consolidated to sub-node)**
    - **Competitive Disadvantage (consolidated sub-node)**
    - **Networking Capability (consolidated to sub-node)**
- Alliance Portfolio Capability
- Resource Cognition

At the resolution of the third phase, the candidate had identified through thematic analysis of the data and the literature base, 19 nodes, and 8 sub-nodes in which to code the transcribed data.

14.2.5 Forth Phase of Data Collection and Analysis

From June 16th to August 10th, 2012, the candidate conducted another analysis of the data resulting in a final set of 25 data codes. The finalised codes are based on the focus and intent of the data from respondents; totalling 88 pages of coded data, 30,318 words categorised within the following codes:

- Lofty Expectations
- Involvement/Engagement Process As a Means to Securing Desired Outcomes
- Personal Relationships Subservient to Business Relationship
- Resource Application
- Lack/Loss of Strategic Focus
- Fuzzy Decision Making Process[7]
- Difference in Corporate Cultures
- Value & Sustainability of the Alliance
- Organisational Learning
- Transference of Dynamic Capabilities Between Industries
- Disappointment & Disillusionment
- Faith/Confidence in Alliance Future/Direction
- Trust
- Strategic Fit of Resources/Vision
- Development of Dynamic Capabilities Between Firms
- Transition from Alliance Capability to Alliance Portfolio Capability
- Alliance Capability
- Dynamic Capability – Innovation
- Genesis of An Alliance (Org "A" & "B" representative subset of overall Portfolio)
- Benefits of Alliance Portfolio Engagement
- Resource Cognition
- Curricular Impact via Alliances
- Alliance Portfolio Capability
- Evolution of Alliance Portfolio
- Management of the Alliance Portfolio

[7] Please note, the term "fuzzy" is defined in the context of an unclear, convoluted decision making process.

This phase of the data collection and analysis process was the most rich and complex. Respondent data was analysed several times to ensure consistency in coding and subsequent classification. Upon reaching saturation in this process, the candidate proceeded to identify the central literature gaps and opportunities, through re-examination and redevelopment of the literature review and to identify the specific contributions and theory development derived from the results. Beyond establishing the first round of codes, the candidate developed the final set of codes outside the NVivo 9 platform (manually). The NVivo 9 platform was critical in acting as a central repository for all documents, audio recordings, transcripts and quick coding. The application was also extremely helpful in objectively assessing the choice in codes, through quick and efficient content analysis tools and suggestions. The application was also extremely helpful in enabling the transcription of audio files, through the ability to reduce the speed of audio by up to 50%. Once all the interviews had been transcribed and the initial data set coded with the initial codes, all subsequent code developments, including the final set of codes were completed manually by the candidate into the final document (88-page matrix; containing 30,318 words of rich, illustrative data).

14.3 DATA COLLECTION & ANALYSIS PROCESS AND THE DEVELOPMENT OF THEORETICAL FRAMEWORKS

As outlined above, as a means to triangulate data sources and inform the interview process, the candidate first collected and analysed a series of observations (participant observation); and archival documents (e.g. formal contracts; emails; alliance agreements; project plans; meeting minutes; etc.) related to each of the case studies ("Org A" and "Org B"). The analysis of this data formed the basis to establish the first set of questions (outlined in the preceding Case Study Profile chapter) and provided a grounded, objective reference for both foreseeable and unforeseeable points of enquiry throughout the interview process. These documents also provided a rich, objective "anchor" by-which the intent, aim(s) and objectives of each alliance relationship were specified and confirmed, which was critical in the pursuit in accomplishing the research aim. From a data collection and analysis perspective, the examination of each case study provided the ability to compare/contrast (common and distinct) variables between/amongst the cases; the specific cases also acted as a reference experience for

respondents in exploring the transition to, and specific characteristics of Michener's alliance portfolio.

The second major method involved in data collection and analysis was the completion of a series of unstructured interviews defined within a theoretical (or intentional) sample (Eisenhardt, 1989). Within this research approach, Corbin and Strauss (2008) refer to this process stating "research is a continuous process of data collection, followed by analysis, and memo writing, leading to questions, that lead to more data collection, and so on (p. 197)." Specifically, in regards to the analysis of data, Corbin and Strauss (2008) posit "that data collection and analysis go hand in hand (p. 145), and that "the doing of analysis is fluid and generative (p. 160)." This is especially critical in the research methodology utilised in this particular research study given the focus of case study analysis, and the resulting Case Study Protocol. Corbin and Strauss (2008) posit, "A researcher cannot possibly know all the questions to ask when beginning a study. It is only through the interaction with the data that relevant questions emerge (p. 216)." It is this fluid, rich, evolving process between data collection, reflection, analysis, formation of developed questions, further data collection that the candidate implemented to the point of thematic saturation (in the context of the research scope).

Corbin and Strauss (2008) confirm that (within this specific research scope and theoretical sample) the data analysis process begins at the conclusion of the first interview, and that "the idea behind the first reading is to enter vicariously into the life of participants, feel what they are experiencing and listen to what they are telling us (p. 163)." As such, throughout the first and subsequent series of interviews, the candidate listened to what the participants were explaining, requested clarification of terms, phrases, concepts, themes to understand fully the context and experience being described. Within each interview, once key experiences related to alliances, dynamic capabilities, innovation, commercialisation, and alliance portfolios were identified, the candidate probed further to understand the relationship, direction, and integration between critical concepts to understand these themes more comprehensively. During the first set of interviews, the candidate utilised the NVivo coding function to designate certain responses to multiple potential data code themes, which reflected the "brainstorming" process recommended by Corbin and Strauss (2008), as a means to investigate the data and decipher concepts/themes. As further interviews were completed and the candidate had an opportunity to draw on and reflect on specific

memos between interviews, the respondent data was coded to a single identifiable theme, either through the specific language/concepts/themes identified in the actual response, the context, or in the meaning of the data (Corbin and Strauss, 2008). The memos represented a variety of forms, including notes, stream of thought/reflection, and draft diagrams proposing concept/theme interactions and relationships. As Corbin and Strauss (2008) specify, the establishment of such memos in the data analysis process contribute to the candidate "asking questions, making comparisons, throwing out ideas, and brainstorming (p. 170)." The analysis of the data between interviews supported the deepening of understanding of core concepts/themes through clarification and the opportunity to challenge meanings and relationships amongst the data (as demonstrated in the evolution of the coding system illustrated in the above sections 14.2.1 – 14.2.5).

As described in previous sections, and as illustrated in the evolution of the coding structure above, the "doing of analysis is fluid and generative (Corbin and Strauss, 2008)." Ultimately, the data codes and the resulting relationships, as articulated by respondents, were summarised in diagrammatic frameworks, illustrated via Figures 11 and 12 in proceeding chapters. As Corbin and Strauss (2008) confirm, "This entire data collection and analysis process will go on until I am satisfied that I have acquired sufficient data to describe each category/theme fully in terms of its properties and dimensions, and until I have accounted for variation (conceptual saturation), and most of all until I can put together a coherent explanatory story (p. 197)." This process, of developing themes derived from the data concepts themselves, resulted in the final set of data codes illustrated above. With the aim of the research program to make a contribution beyond an explanatory story into theoretical development (as summarised in Chapter 18 - Contributions), from a data analysis and validation perspective, in later interviews incorporated the diagrammatic conceptual frameworks (e.g. Figure 11 and 12 illustrated in Chapter 16 – Results: Initial Analysis, as well as other draft frameworks that were not included in the final dissertation but referenced throughout the proceeding Results chapter) and sought insight, clarification and contribution from respondents. The integration of memos, and the validation/grounding of draft frameworks throughout multiple respondent interviews that results in a final (diagrammatic) theoretical framework contribution is an established practice within this research design (Corbin and Strauss, 2008). The theoretical frameworks (e.g. Figures 11 and 12) were adapted, evolved and re-developed over a series of interviews to close various gaps to the point

where saturation was achieved and subsequent respondents did not provide any new insights/contributions to the models.

As a means to effectively manage the data throughout the collection and analysis process, the NVivo platform was an excellent tool in assisting first in the general categorisation of early concepts from the first set of interviews. As the process of data collection and analysis continued throughout the research program, the specificity of the data concepts and resulting data coding themes increased. The NVivo platform provided an additional content analysis tool insofar as basic functions such as word frequency diagrams illustrated (without bias from the candidate) frequent concepts and topics that may have been overlooked or not given appropriate attention by the candidate. Additionally, the data tree diagrams offered through the NVivo platform (while linear in presentation) offered the candidate some initial insights to the directional aspects of the data codes (e.g. trust as a concept was usually discussed before, and as an enabler to the development of a dynamic capability in innovation). These tools assisted in the early analysis of data concepts/themes in the context of establishing "axial coding" relationships as illustrated in "Figure 11 – Finalised Data Codes & Directional Relationship of Data".

The NVivo platform also assisted in the transcription of interviews in reducing the audio playback speed by up to 50%; all recorded interviews were transcribed into the NVivo platform. While the NVivo platform was an excellent tool for the management, reference and general inquiry (through the reporting and data analysis tools referenced above) the platform itself did not supersede the requirement for the candidate to conduct an exhaustive and continuous analysis of the data. As described above, the degree of analysis throughout the completion of interviews requires the candidate to examine, articulate, challenge and question (in subsequent interviews) the meaning, relationship and synthesis of data into a series of conceptual (diagrammatic) frameworks. While NVivo is an excellent data management platform (inclusive of data analysis scripts and tools), the degree of data analysis required to advance this research strategy ultimately resides with the research candidate.

14.4 DATA ANALYSIS – EXAMINATION AND EXPLORATION OF CASE STUDIES IN DEVELOPING THEORETICAL INSIGHTS

While the process in which specific data concepts, themes and resulting codes were established above, the candidate also employed a cross-case analysis approach to analyse the data and the resulting data codes between the two case studies ("Org A" and "Org B"). This process, as described by Eisenhardt (1989), is a natural extension of analysing "within" case studies to that of "cross-case patterns" (p. 540). In establishing data codes (representing categories/themes in the data, both within and between the two case studies), the candidate was able to create a cross-comparison matrix (88-page matrix; containing 30,318 words of rich, illustrative data), organised by data codes by category/theme (row) and specific case study "Org A" and "Org B" (column). As Eisenhardt (1989) describes, "This tactic forces researchers to look for the subtle similarities and differences between cases (pp. 540-541)." An illustrative example of this coding process has been provided in "APPENDIX E – Data Analysis: Example of Cross-Case Coding" which illustrates the cross-coding of data and establishment of the specific data codes of "Development of Dynamic Capabilities Between Firms" and "Trust" (please note, to ensure confidentiality all personal identifiers and names have been generalised in the data examples; the illustrated data provide a representative sample, rather than an exhaustive list of quotes for each of the two data codes/themes).

This process enabled the examination/exploration of the specific case studies and build potential case explanations (Yin, 2009). The establishment of data codes (categories/themes) enabled the candidate to explore where and why specific data codes where present in a single case study (e.g. fuzzy decision making), or referenced in responses in both case studies (e.g. trust). In pursuing explanations and theoretical insights, the candidate was able to question and challenge respondents through subsequent interviews to better understand why specific data codes (categories/themes) were reflected in one case, and not the other; and where the data code category/theme was present in both, such as the theme of trust (Eisenhardt, 1989; Corbin and Strauss, 2008).

14.5 TEST FOR DATA CODE (CATEGORY/THEME) BIAS

At the conclusion of the interviews and subsequent data analysis, the candidate randomly selected an interview respondent and requested their participation in completing a data-code bias-test (via the methodological approach outlined within Chapter 12 - Data Collection & Analysis: Case Study Protocol). Upon reviewing the data code bias-control process with the respondent (and upon the completion of an additional Informed Consent Form and Confidentiality Agreement) the randomly selected respondent reviewed ~11 pages of randomly selected responses, consistently selecting the same data codes as applied as the candidate.

14.6 THE CODING PROCESS - AN ILLUSTRATIVE EXAMPLE

As an illustrative example, the candidate will demonstrate the development of the research concept of a dynamic capability of innovation involving Michener and "Org B." Beginning at the first interview, the candidate questioned respondents on the nature of the innovation, and specifically what (if any) of the specific developments resulting form the alliance could be considered at all innovative. After specifying the definition of innovation (pre-circulated, please see APPENDIX D - Supplemental Glossary of Terms: Specific to Research Interviews) respondents were requested to list the specific evidence of the innovation developed within the context of the Michener-"Org B" alliance relationship. Respondents identified several points of evidence of innovation, such as establishing new part numbers; design/building of new specific (cooling) parts and approaches; the installation of the linac units on a 9^{th}-story floor, and the creation of the emulation software that simulated the full scope functionality of a MV-linac with a unique KV-linac design. Once it was established that these innovations had in fact occurred (by referencing the specific points and artefacts of evidence), respondents were requested to describe the context (Corbin and Strauss, 2008) in which these specific innovations occurred. For example, how did the teams work together; what were the unique characteristics of the discussions; how did the multiple teams contribute to these respective innovations; what were the variables that were present between team, what variables were developed over time; how did these specific innovations integrate with the broader alliance relationship between Michener and "Org B"; was one firm more dominant in providing the specific innovative capability or was the innovative

capability/capacity developed between firms; and how did these outcomes impact/influence other capabilities, such as commercialisation. Whilst the process of data collection and analysis occurs simultaneously during individual and/or focus group interviews (in order to clarify, examine, explore core concepts, themes and categories), the candidate also employed the use of memos to "chew" on the data and identify core concepts (Corbin and Strauss, 2008). Following the example of "chasing" the concept of the development of a dynamic capability of innovation between Michener and "Org B", on March 5th, 2012 the candidate completed the first interview with Michener-Executive I, who offered the following in reference to why alliance relationships were required and specifically within the radiation-therapy program:

> "But that was at that point I think we were then at a mindset because of the move towards strategic alliances as a vehicle to address what had never been provided by our government funding relationship. That right from the get go it wasn't really interested in getting another proxy simulator as we had originally. You know wanted to do something that was going to certainly approximate the department the students would be working at when they were practicing as a radiation therapist. That meant getting a contemporary linear accelerator. That was there. Yes these are large, yes these are complex pieces of equipment but that I thought was what we needed to move forward."

Several concepts emerge from the response above, including "strategic alliances as a vehicle"; "government funding"; "approximate the department the students would be working"; "contemporary linear accelerator (linac)"; "what we needed".

Resulting from the same interview, the candidate sought evidence of innovation between the respective firms after visiting "Org B's" UK factory:

> "And the guy kind of laughed and he says yeah we had to give them product numbers so we had to put them in our catalogue and if we ever need to sell them again we know what to list them as a purchase order. He said we couldn't even list them. This didn't fit our purchasing system. That to me became one of those watershed moments in terms of what this (alliance) relationship meant."

From a data analysis perspective, the above response provided some form of evidence that an innovation took place well before installation. Secondly, the degree (no way of referencing the new parts through product numbers) and specific types of innovations (hardware/software) became clarified. The term 'watershed moment' became a particularly important phrase that the candidate wrote a memo towards, indicating a realisation to the degree of success of innovation within the (alliance) relationship.

The above analysis, conducted after the interview on March 5th 2012, enabled the candidate to conduct an informed interview with the Sr. Executive Management Team of "Org B" two-days later on March 7th, 2012. Within this focus group interview involving three (3) respondents, the candidate was able to establish and probe these specific concepts further and seek clarification, evidence, and understanding from their unique perspective. The degree of innovation was confirmed, and additional examples of innovation were explored (e.g. the emulation module which enables the KV-linac to function as a MV-linac). Representative comments such as the following enabled confirmation of existing and identification of new concepts:

> "The emulation software innovation was the hardest innovation."

> "Yes, it was a new baby, and the one thing "Org B" is really good at is making new babies. If you look at our history of innovation and breakthroughs, digital accelerators, VMAT, IGRT."

> "It's unique, it's a notch in the gun belt. No one else in...Its personal capital for him. He is the guy who did this...no one else in North America has done this for any company. It was actually not thought possible. Which gave him more motivation. Everyone says no, his personality doesn't accept that. He doesn't take no as the answer. He's a farmer. It's like a kid, you tell them no, and they'll fight you to the death. So its good we had him. He made a big impact."

The data analysis process enabled the synthesising these interview responses and specific concepts such as "unique", "emulation software innovation was the hardest innovation", "notch in the gun belt", "new baby", "couldn't even list them", "product numbers", "watershed moment", etc. These identification, pursuit, and development of these concepts with (multiple respondent interviews thereafter) enabled the candidate to

clarify and explore the context and variables involved in establishing a dynamic capability in innovation, or "DC-Innovation" above. Subsequently, other concepts, such as "watershed moment" of visiting the UK plant were cross-referenced with executives/manager and installers from "Org B" to determine if the same experience/meaning was attributed to this concept as described by the Michener Executive I. The cross-referencing of data concepts within multiple interviews enabled key insights and discoveries. For example, in referencing the "watershed moment" concept with another representative from "Org B" on May 23rd, the respondent indicated that from "Org B's" perspective, the visit was also a "watershed moment", as before the visit "the project was hanging from a thread." It was explained that the shared experience (meeting of alliance partners at the UK factory where the development of several innovations were underway) acted as a catalyst and confirmation "that what we were doing was special, unique."

The above example illustrates the process of identifying, clarifying, examining and grounding a specific data concept/theme/code with and amongst respondents. Core data concepts are triangulated and validated with each subsequent interview, resulting in the development of the specific theoretical frameworks and results outlined in Chapter 15 - Results- Archival Review & Analysis, and Chapter 16 - Results: Initial Analysis.

14.7 DATA COLLECTION, ANALYSIS & SYNTHESIS OF LITERATURE

At the conclusion of the data collection and analysis phase, the candidate reviewed the existing literature review submitted to Edinburgh Business School in the Fall of 2011. This had the dual purpose of suggesting initial areas in which the collected data would provide a contribution to the development of existing theory; and suggested that other, more complex fields of research and subsequent interconnectivity to existing literature themes be explored and captured as part of the updated literature review within the proceeding data results chapter. This major secondary phase of data analysis and categorisation was crucial in identifying the specific distinct research contributions of this dissertation.

CHAPTER 15 - RESULTS: ARCHIVAL REVIEW & ANALYSIS

15.1 INTRODUCTION & ALIGNMENT TO LITERATURE REVIEW & RESEARCH SCOPE

Helfat and Winter (2011) identify alliances and new product development as examples of specific dynamic capabilities. The focus and scope of this research thesis is to examine/explore the development of dynamic capabilities between firms, within a limited time frame to establish a new product/service innovation (to support Michener's core business of graduate healthcare education in the applied health sciences) through alliance relationships ("Org A" and "Org B") as a means to develop/secure relevant resources (Barney, 1991). Through this experience, this research thesis will explore the extrapolation of a dynamic capability in alliance management to that of Michener's alliance portfolio (Wassmer, 2010).

As described by Helfat and Winter (2011), the process of establishing a defined line between dynamic and operational capabilities can be extraordinarily difficult, given time frames and units of analysis. In defining dynamic capabilities, other researchers (Wang and Ahmed, 2007) have posited that the presence of rapidly changing and/or highly volatile markets presents the environmental context to whether firms create new capabilities to support the continued operations of their respective core business. Helfat and Winter (2011) illustrate several examples (related to semiconductor chips; outlet proliferation; and oil and gas exploration) where seemingly operational activities, when considered over a long-term perspective, are in fact dynamic in their design/application. This is of particular importance to Michener. As described above, whilst focusing on the development of dynamic capabilities between firms ("Org A" and "Org B"), the establishment of these respective dynamic capabilities (specifically, the dynamic capabilities of alliance management, innovation and commercialisation between firms) have an impact on Michener's macro-dynamic capability related to its pedagogical approach and resulting effectiveness. Given the capital intensity and role of simulation in Michener's educational disciplines, each time a major technological/pedagogical advancement occurs in the macro-environment, Michener must "decide whether to participate in this next phase of the industry" (Helfat and Lieberman, 2002), and if so, evolve its overall pedagogical/resource approach. An example is the discipline of radiation-therapy, where technology innovations have seen major technological

developments related to standard radiation treatment for oncology, to the development of IMRT, IGRT and VMAT; similarly, within the nuclear medicine discipline, the introduction of single-head cameras, to dual-head cameras, to SPEC/CT units and currently multi-modality (hybrid) models. While Michener continues to educate within these respective disciplines (macro-dynamic capability), the complement of resources, equipment, educational approach, alliance partners and resulting capabilities must adapt to remain an effective and valuable educational experience (Helfat and Lieberman, 2002). This integrated relationship between layers of capabilities is effectively stated by Teece (2012):

> "Dynamic capabilities are 'strategic' and distinct from ordinary capabilities. Firms can maintain and extend competitive advantage by layering dynamic capabilities on top of ordinary capabilities (p. 1396)."

Kay (2010) provides further context to Teece (2012), in regards to the levels of capabilities, positing, "In short, both operating and dynamic capabilities are best defined not in terms of what they are, but in terms of what they do, and what they do depends on context (p. 1211)."

Helfat et. al. (2007) posit "since dynamic capabilities create, modify, or extend the resource base of an organisation and since dynamic capabilities also comprise part of this resource base, this implies that dynamic capabilities can modify or extend dynamic capabilities (p. 4)." Thus, in synthesising these perspectives of dynamic capabilities, the examination/exploration of the dynamic capabilities (specifically, the dynamic capabilities of alliance management, innovation and commercialisation between firms) involved in case studies "Org A" and "Org B" over the time frame of two to three-years allow the candidate to ground and recognise (contextually) to Michener's 57-year macro-dynamic capability related to the evolution of its pedagogical approach and educational experience.

15.2 INTRODUCTION TO CASE STUDY ORGANISATIONS ("A" & "B")

Before proceeding to the specific results from the respondent data, the candidate (as a means to provide relevant context to the interview questions and anticipated discussion) leveraged the comprehensive archives involved with each respective case study. This is

an essential data analysis process insofar as the documents, including contracts, agreements, working papers, press releases and implementation plans provide a rich, objective "snap-shot" of the original intents, focus and vision of each case at different time-points. The subsequent data sources were referenced, where required throughout the interviews with respondents internal and external Michener (e.g. limited to respondents within "Org A" and "Org B" respectively, as to comply with existing confidentiality agreements and/or the terms and conditions outlined in the organisational letters of support). The following case summaries provide a contextual history and illustration of each respective alliance case study with "Org A" and "Org B."

15.2.1 Case Study #1 - Michener & Organisation "A" ("Org A")

Note: Methodology & Citation Clarification - Please note that all references/citations to "the agreement" between The Michener Institute for Applied Health Sciences and Organisation "A" are extracted from the document archives originating from the exploration of the alliance, formal agreement (completed in August 2008) and the process and development of the alliance to January 2012 (representing the archival analysis process). The data presented throughout this section also reflects the perspective of the candidate (participant observation/involvement), as he was involved in the negotiations and development of the originating contract and evolving relationship. The proceeding Results chapters will reflect the third methodological approach, that of the responses from the semi/unstructured interviews. These specific methods (archival analysis; participant observation/involvement; and semi/unstructured interviews) are applied and presented within a case study approach.

The identity of the organisation has been changed to Organisation "A" (referred to as "Org A") to maintain confidentiality assured and referenced throughout the literature and ethics review submissions.

The Genesis & Development of a Proposed Alliance with Organisation "A"

As referred to in preceding sections, The Michener Institute for Applied Health Sciences (hereby referred to as "Michener") specialises in the education of healthcare professions within the applied health sciences (e.g. radiation therapists; radiologists; respiratory therapists; etc.). Organisation "A" is a world-leading organisation (in terms of revenue and market share), that specialises (amongst other business lines) in simulation education in piloting of commercial/military aircraft. In 2008 Organisation

"A" aimed to diversify its strategic business units and capabilities from aviation simulation skills and techniques into healthcare simulation, creating a new business unit called Organisation "A" - Healthcare. Organisation "A" has over several decades developed significant and valuable capabilities in the development of aviation simulation curriculum; the development of aviation simulators (hardware); as well as the operationalisation of the simulation Centres themselves.

The document titled "value proposition" provides an excellent insight to the alliance establishment process and approach. On March 24, 2008 Michener visited the headquarters of Organisation "A" to meet the then Vice President, New Products & Services and Managing Director, Healthcare. While a Memorandum of Understanding (MOU) was signed previous to these meetings, the intent of the MOU was to establish the process for further explorative discussions within a confidential environment. The "value proposition" document summarises the initial focus of these explorative discussions. The document is segmented into 3 main sections, including:

- Section 1 – Michener/Organisation "A" Strategic Alliance – which outlines the intended mutual benefits
- Section 2 – Overview of Michener – provides an overview of academic business strategy and accomplishments
- Section 3 – Capital Development Project – illustrated the intent and plans for the simulation floors (described in proceeding section, OSCE & simulation Suites)

Importantly, the goals of the proposed alliance are referenced and clarified, including:

1. International Standard for Healthcare Simulation Delivery, defined to include:
    - Optimisation of healthcare simulation centre activity and throughput
    - Resource integration (within and between Centres)
    - Commercialisation

This specific (intended) goal of the alliance is significant for several reasons. First, it confirms the desire to collaboratively create a dynamic capability of commercialisation within the context of the simulation centre; an important focus for Michener at this time given the perceived need to develop/acquire this capability. Secondly, the resource integration "within and between Centres" is a reference to the fact that the original

vision was that this alliance would be part of several other alliances that Organisation "A" would be establishing with other healthcare simulation centres. Within the perspective of Michener, this broader network would act as an important complement to Michener's alliance portfolio for sharing expertise, capabilities, curriculum, curricular media assets; etc.

2. Centre of Learning in Healthcare Simulation, defined to include:
    - Train the Trainer Modules
    - Valid and reliable evaluation and assessment methodologies/practices
    - Conducting Research in Healthcare Simulation

This goal confirms the desire to establish the alliance as a contributor to "thought leadership" within the healthcare simulation industry through research, and the establishment/application of innovative teaching/assessment methodologies, as well as the central outcome of the design/development of innovative curriculum.

3. Innovation & Leadership in Healthcare Simulation, defined to include:
    - New product development (including but not exclusive to the area of advanced imaging) and/or current product (software) enhancements in healthcare simulation
    - Impact/efficacy of healthcare simulation for the end-user or healthcare provider

This specific goal confirms the original desire to co-develop a dynamic capability in innovation within healthcare simulation, specifically within new product/service development and simulated curricular assets/experiences for the healthcare provider.

The document contains further perspective to the alliance, including the supporting rationale and scope of the alliance. The founding rationale in proceeding with this alliance and the subsequent alliance portfolio (Michener-centric) or network (Organisation "A"-centric) was to address:

- impeding and imminent health human resource shortages
- the need for increasing numbers of learners in the system when the capacity of healthcare institutions is least able to accommodate increased clinical placements

- pressures to decrease the length of educational programs
- concerns about patient safety statistics
- accountability mandates to focus on the quality of healthcare workers and their practice

These rationales were critical in referencing specific themes and developments within the data collection process (and specific interviews and subsequent theme development). The document further confirms Michener's recognition of the Organisation "A"' dynamic capabilities in innovation and commercialisation within its established industry of aviation simulation education.

Confirmation a Formal Agreement

In August 2008, Michener confirmed an agreement with Organisation "A" (titled "Organisational A Agreement With The Michener Institute for Applied Health Sciences – For the collaboration, management and various services related to the establishment of a pre-eminent jointly-led Healthcare Simulation Centre.") which sought to create an alliance that would result in the development of dynamic capabilities in the i) innovation/commercialisation of curricular assets within the applied health sciences; and ii) commercialisation of a ~20,000 sq. foot healthcare simulation centre. This relationship was critical to the approval and development of the simulation centre insofar as the total project cost to complete the construction of these two-floors was ~$11.5 million, with ~$8.2 million being directed from the Ontario Ministry of Health and Long-Term Care, with the remaining ~$3.0 million being directed from Organisation "A". Thus, the formal agreement included interests in the capital development and funding, as well as the operational responsibilities within the simulation centre post-construction. The original innovation objective related to the construction of the Centre itself, illustrated below through the resulting floors plans:

Figure 5: 3rd Floor OSCE Rooms, courtesy of The Michener Institute

Figure 6: 4th Floor Simulation Suites, courtesy of The Michener Institute

Figure 5 above represents 24 individual clinical examination rooms (approximately 10'x10'), which support the competency evaluation/assessment of individuals and teams in a variety of healthcare simulations. OSCE is defined as "observed structured clinical evaluation" (Harden, 1988) and is an internationally recognised methodology for assessing/examining healthcare professionals. Figure 6 represents the 4th Floor, which is dedicated to healthcare simulation suites, where large and custom simulation experiences can be scheduled/organised involving several healthcare professions (e.g.

home care setting; ICU; critical care; etc.). The intent of the simulation Centre was "to become a self-funding venture" (p. 8 of 27).

The overarching intent of this alliance (with Michener and Organisational "A") was the transference of simulation capabilities from the aviation simulation industry to the co-development of dynamic capabilities (innovation; commercialisation) within the emerging healthcare simulation industry (in all respects, including the capabilities associated with the design/development of simulation curriculum and experiences and resulting courses; the development of healthcare simulation hardware; and the operationalisation of dedicated healthcare simulation Centres throughout Canada). Michener recognised the dynamic capabilities of Organisation "A", specifically of innovation (of curricular assets, experiences) and commercialisation (through the operationalisation of this curriculum and simulation hardware with dedicated simulation centres). The agreement (page 3 of 27) confirms appreciation in stating:

> "Organisation 'A' is prepared to contribute to the development of this Simulation Centre its vast expertise, including, amongst others, the provision of consulting and project management services for the construction of the Simulation Centre, consulting services related to implementing a continuous improvement process, courseware development and, most importantly, the management of the Simulation Centre, in return for a fee and share of the profits to be generated from the commercialisation of Spare Time and Capacity…".

Given Michener's needs of the simulation Centre were not expected to exceed 50% capacity (Monday-Friday, 0800-1800), Michener agreed to authorise Organisation "A" the use of this additional capacity for the commercialisation efforts and internal (training) purposes (reflecting the definition/intent of "commercialisation of spare time" (p. 15 of 27)). Similarly, where there was additional capacity within Michener's building (outside of the simulation centre) Michener would authorise Organisation "A" to pursue commercialisation of this space (representing the intent/definition of "commercialisation of spare capacity" (p. 16 of 27)).

The agreement also contains a comprehensive business case and cash flow statement for a 10-year period, with net profits from the commercialisation of courseware, spare time

and spare capacity beginning at ~$0.7 million in year-one, escalating to ~$2.4 million in year-ten.

Operationalising the Agreement – Launch of a Simulation Centre & Alliance

Given the scope, degree of innovation, and complexities of the agreement, several change management meetings; articles and brand awareness publications were created to maximise the intent and likelihood of success.

Fall 2008 – Contract Implementation

In early September, 2008 several meetings were held with senior staff in both respective organisations to discuss process outlined within the document titled "Organisation 'A'-Michener – Contract Implementation. The document outlines the central issues of the alliance to be developed, including the collaborative vision, mission, strategic business objectives, Alliance Charter (and related components) and a comprehensive change management plan. With the candidate participating in these discussions, the majority of the conversation was dedicated to establishing the vision and mission of the alliance and thereby the simulation Centre. The aim of the Charter was to establish the central components, including the "vision, mission, strategic business objectives, purpose, project scope, goals and objectives, milestones, roles and responsibilities of the team and a resolution framework (slide 11 of 75). Given time constraints, discussion and development of these factors beyond the vision and mission did not progress beyond a preliminary overview, with agreement to develop outside the formal meetings, and during an upcoming retreat at Organisation "A" headquarters. Given the literature base focus on the contributors and difficulty of alliance success (Kale et. al., 2002), two elements within this presentation are important to note; that of the Business Management Council (BMC) and the anticipated change management process. The BMC was intended to act as the "only approved vehicle to make key business decisions" (slide 14 of 75) within the alliance, and was to review "outstanding issues that can have material impact on the Organisation "A"-Michener partnership" (slide 15 of 75). The BMC was anticipated to contain several tiered groups, including the (slide 16 of 75):

- Working Group – focus on day to day business, with meetings more frequent during the alliance start-up, to interface and leadership through Business

Process Owners (BPOs, designated functional/cluster leaders within each institution)

- Core Process Group – Group designated to resolving impasses at Working Group level; lead by Core Process Owners

- Steering Group – Highest tier; has authority to veto decision taken by Working Group or Core Process Group; decisions of this group are strategic in nature, consisting of executive management (respective executive management, VPs and CEOs of each organisation.

This structure suggests a comprehensive attempt to establish a framework whereby communication, operational and strategic discussion making could be supported and sustained within the alliance.

The second major focus of the document pertains to the comprehensive change management strategy. The presentation slides focus on core (generic) change management concepts such as the definition of change; reactions to change; perception of change; tools to combat resistance to change; key success factors; etc. The concepts are presented as means to not only illustrate the concepts to be considered and defined, but also as a framework to initialise the development of specific deliverables, including a formal communications plan and project impact and stakeholder assessment (slide 35 of 75).

Finally, great attention of this document is focused on the theme and process of implementation, largely through the concept of business process management (slide 38 of 75). The objective was to establish a formal process methodology for each customer focused process experienced within the simulation Centre, including:

- client acquisition, including key sub-processes of market analysis, business development, marketing activity, sales activity, contract execution and client registration (slide 45 of 75);
- training operations, including key sub-processes of scheduling, client reception, training delivery and service documentation (slide 46 of 75);
- technical services, including key sub-processes of preventative/corrective maintenance (slide 47 of 75);

- employee fulfilment including key sub-processes of talent acquisition, talent and succession development, engagement and transfer (slide 48 of 75); and
- client administration, including key sub-processes of invoicing, accounts receivable and collections (slide 49 of 75).

This collective of processes represent the business process structure required to operationalise the simulation Centre, and by extension the alliance relationship. It represents an appreciation for the complexities and requirements in operating a joint-innovative environment such as the simulation Centre. The remainder of the document is focused on the methodology associated with improvement projects and the training and education requirements to be launched at the completion of the construction phase (e.g. staff education related to simulation phantoms; quality assurance sign-off process for construction phase; etc.).

It is important to note that the document is highly conceptual and procedural, indicative of the early phase of this alliance. The document is clearly an attempt to establish clarity of direction and purpose (vision, mission); key terms and processes; and a thematic illustration of what was anticipated to be complete for the launch of the simulation centre, and the processes related to innovation and commercialisation. These themes conversations above were continued at a joint half-day session on November 20th, 2008.

Subsequent to the above Agreement and resulting process methodology, the majority of Michener's administrative and operational leadership team visited the headquarters of "Org A" to build awareness of the nature/intent of the agreement, to discuss the process methodology process, and to clarify the specific operational resources to be applied by each organisation to each respective process. This focus and events of this two-day session were captured in a document called "The Spirit of the Alliance." This document, and the central themes and intents in which it represents, will be explored in greater detail in the proceeding Chapter 16 - Results: Initial Analysis.

The aim of these archives was to establish enough relevant reference and context to examine and explore the process and experience in the pursuit of establishing dynamic capabilities of innovation and commercialisation within the alliance environment. The referenced documents above provide a rich source of data in which to establish time-

specific insights, intents and context, which was leveraged in the unstructured interviews with participants from both respective organisations.

15.2.2 Case Study #2: Michener & Organisation "B" – ("Org B")

The Genesis & Development of a Proposed Alliance with Organisation "B"

In the context of exploring the relationship between Michener and Organisation "B", it is important to reference the fact that while this case study represents the first agreement and pursuit of innovation and commercialisation with Organisation "B", Michener did have alliance relationships with two subsidiaries of Organisation "B". The first subsidiary engagement, which began in the summer 2006 focused on a software installation required to operate hardware (linear accelerator) within the radiation therapy program. The second engagement began in 2008 with a third party company specialising in treatment planning platforms, which enable dosimetrists to build custom treatment plans for oncology patients. Michener was in the final stages of negotiations to procure this platform with this firm when they were acquired by Organisation "B".

In 2008, having upgraded the software and platforms for both the e-charting and treatment planning within radiation-therapy, Michener began to explore the opportunity of replacing two linear accelerators to complete this complement of lab equipment within this program through an alliance with Organisation "B". It is important to state this clarification as a means to acknowledge that some "carry-over" of relationship knowledge and goodwill from the earlier relationships perhaps transferred to the explorative discussions with Organisation "B". It is also important to note that the key contacts for each alliance were different, so while some "carry-over" could have occurred, with different people involved in each of the three alliances with Organisation "B", this may be a limited impact. From a research scope perspective, while the candidate will explore this connection with interview respondents, the candidate will not be conducting a comprehensive archival review/analysis of the two preceding alliances to the alliance with Organisation "B".

The alliance intent with "Org B" was significant for several reasons, including the design/development of unique instructional assets within the radiation therapy program, as well as to contribute to Michener's evolving alliance portfolio through the establishment of dynamic capabilities in innovation and commercialisation. In securing a formal alliance with the parent company Organisation "B", Michener was efficiently

integrating three (3) formal alliances through a single relationship (Organisation "B" and its two (2) subsidiaries). This was an intended goal, not just for the sake of operational efficiency, but also from a corporate impact standpoint, specifically to enabling new possibilities within innovation and commercialisation.

This is captured in a Michener Board of Governors Monitoring Report (submitted for the September 2008 Meeting). The monitoring report of interest provides a unique snapshot in time of Michener's evolving alliance portfolio. Titled "II-61, Focus on Business and Other (non-academic) Strategic Alliances" while not completely exhaustive, the report outlines several specific alliances that were created and/or had advanced since the previous reporting period (specific reporting period of this report was January 2008 – September 2008). The report confirms existing relationships with the two (2) subsidiaries of Organisation "B"; an alliance with a regional technology firm exploring support technologies for digital microscopy; an alliance with a global cardiovascular perfusion company resulting in the investment of a heart-lung machine; a bi-party alliance between a subsidiary and parent company dedicated to digital microscopy; the alliance with Organisation "A"; and an alliance with a chiropody company which excelled in the electronic measurement/treatment assessment platform. It is within this alliance portfolio context and specific Board Meeting that the alliance with Organisation "B" was presented/discussed. The themes of the intent of the alliance portfolio, the alliance within the alliance portfolio, the management and evolution of the alliance portfolio, and the focus on dynamic capability development within innovation and commercialisation was a central theme at this time, and is to be explored in greater detail with the interview respondent data results in proceeding chapters.

Confirmation of a Formal Agreement with Organisation "B"

While the alliance between Michener and Organisation "B" was proposed to the Michener Board in the Fall 2008, final project approval was dependent on joint project capital funding through Michener's primary funder, The Ministry of Health & Long-Term Care. With this funding approved in the summer months of 2009, approximately 3-months of effort were confirmed in a formal agreement in October 2009 titled "Purchase & License Agreement". The candidate was the designated lead representative from Michener to complete this draft agreement.

The agreement was representative of the pursuit of a dynamic capability in innovation in several ways. First, in weighing at 25,000-40,000 pounds each combined with the issue of radiation-safety, linear accelerators are almost exclusively installed in hospital/clinic basements, traditionally called "bunkers. " These bunkers have the capacity to hold the weight and provide a segmented (lead-lined) room for radiation safety. As a learning organisation, Michener's goal was to install 2 liner accelerators on the 9th Floor (of a total 15 floors) as this floor also includes offices for faculty members and the other related radiation therapy labs (treatment planning lab; VERT Lab; breakout rooms; etc.). This would require an innovative capability from a structural engineering perspective; an installation perspective and development of the actual linac devices.

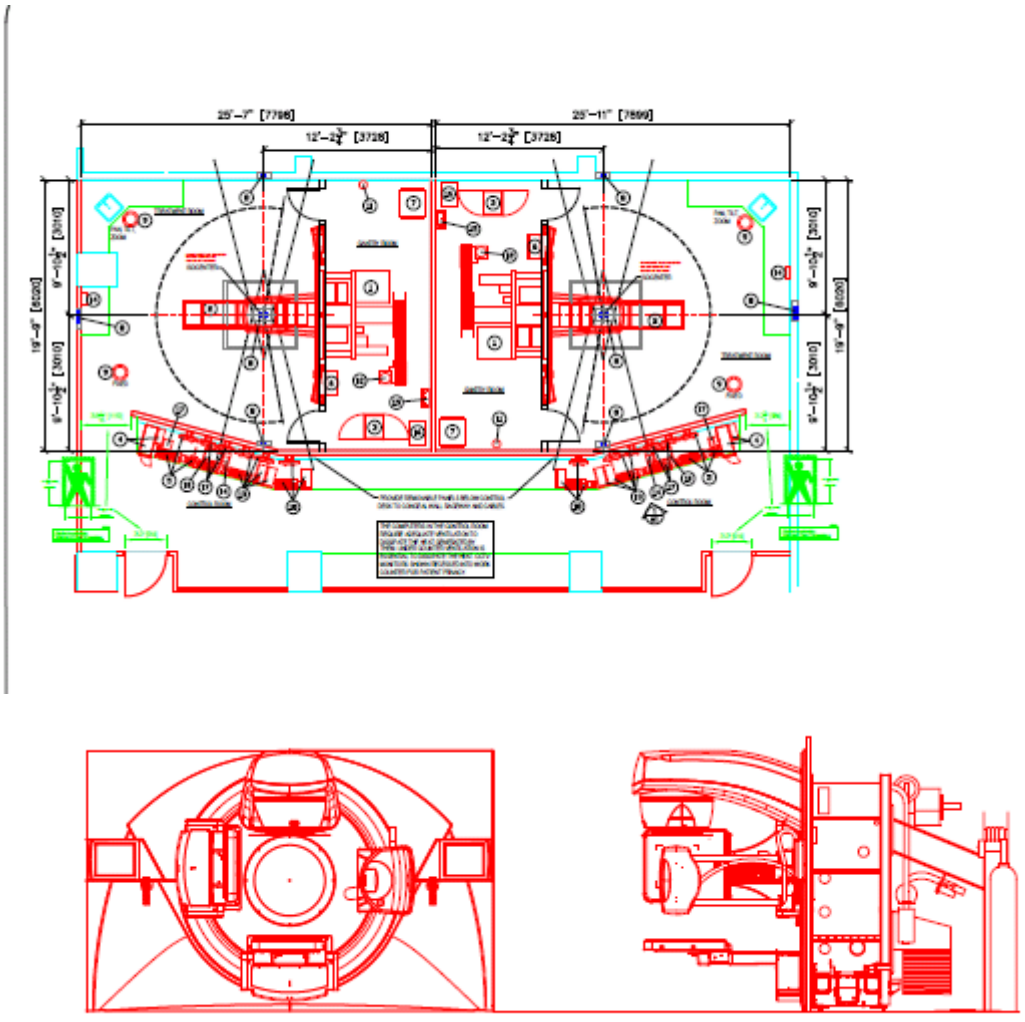

Figure 7: Design Plans for Linear Accelerator Installation, courtesy of "Org B"

Secondly, as an educational institution, from a student safety perspective, Michener required the building a completely new linac device, one that operated, looked and functioned as a "real" linac, but one where the strength of the treatment beam was dramatically reduced. In clinical terms this is referred to as the difference between "MV" and "KV" beam, with KV beam being significantly mitigated in terms of strength/power. While this was an innovation onto itself, Michener also requested that the finalised product integrate with the software/workflow platform, to effectively simulate a radiation therapy treatment process, complete with beam and resulting images post-treatment, but without a fully functional linac unit. This not only required a significant ability to innovate a new linac hardware model, but also to innovate a unique "emulation" software platform that would simulate the fully functional linac operating experience without a fully functional linac capital unit. The engineering of such a linac unit and related emulation software would represent a significant (and to-date not established) innovative commitment.

Figure 8:[8] Custom Linear Accelerator Installed at Michener Campus, courtesy of The Michener Institute

Fall of 2009 – Contract (P&L) Implementation

The implementation of this project is distinct in several respects. First, given the complexity and degree of innovation required of this agreement/project, several implementation teams were created, joined and disbanded at different times throughout

[8] A special thanks to Alex D. for his assistance in enhancing this image.

the implementation process. Almost immediately after the confirmation of the agreement between Michener and Organisation "B", and internal implementation team was created to begin exploring the fundamental issues and actions required to advance the agreement. The final signature on the agreement between Michener and Organisation "B" was obtained on October 26th, 2009. The creation of the first draft "Project Charter" for this agreement was completed on November 26th, 2009, with a first team meeting organised on December 7th, 2009. What was also unique in this implementation plan was the degree of engagement with respect to the faculty. Faculty members within radiation-therapy were invited to participate in all meetings including the agreement implementation, engineering assessment (structural; electrical; etc.), and design-build discussions with the construction management firm, throughout the life of the implementation process (estimated at time of signature to be approximately one-year long).

Implementation Teams involved in Alliance between Michener & "Org B":

- Michener Directed – Holistic Agreement (Project) Implementation Team, complete with Michener management, faculty, staff based in Toronto, Canada;
- Organisation "B"– Installation Team, complete with executive team and Sr. Engineers from Toronto, Canada & USA;
- Organisation "B" – Engineering Development Team in UK; and
- Construction Management – Project Implementation Team dedicated to Design/Build.

The intent of the Project Charter, first established on November 26th, 2009 and updated for the length of the implementation process, was to provide clarity to the implementation goals, stakeholders, deliverables; and the assumptions, budget, risks, constraints and issues resulting from this process. With this clarification, the coordination and efforts of the various implementation teams could be maximised.

The Charter states that the vision was:

> "To enhance Michener student educational experience and create teaching opportunities for the Michener faculty by providing state-of-the-art equipment and software."

This is an important reference as the vision is focused on the impact to the academic environment and maximising the student experience (in a sense, the pursuit of innovation in relation to our core business of educating students). In the context of the relationship described in the above section with Organisation "A" and the intent/pursuit of "commercialisation of spare time", the implementation of this agreement and resulting linac units was intended to contribute to net new revenue generation opportunities. This also represents an important illustration of how Michener envisioned the synergies of its alliance portfolio, insofar as the success and result from one alliance (installation of innovative technology through unique linac units with Organisation "B") could enable the goal and intent of another alliance (commercialisation of spare time in alliance with Organisation "A"). Similarly, once the capability of innovation was established with "Org B", the application of the dynamic capability in innovation post-installation to new developments would also contribute towards the cultivation of the intended dynamic capability in commercialisation with "Org A."

With the Charter the goals of success are articulated:

> "All equipment, hardware and software delivered, installed, tested and ready to be used for student instruction by September 1, 2010"; and
>
> "Program personnel trained and ready to operate new equipment, hardware and software for student instruction by September 1, 2010."

The operationalisation of these goals was outlined in the proceeding sections of the Project Charter. From a resource application, coordination and engagement perspective, the relevant stakeholders were identified as the faculty of radiation therapy and medical laboratory sciences; the students of each program; Michener Executive Sponsor; Michener Project Sponsor; Michener Radiation Therapy Program Chair; Michener Medical Laboratory Sciences Chair; Michener Facilities & Operations Contact/Lead; Michener Health & Safety Manager; Construction Team Manager; Engineering Support; Base Preparation Contact; Michener Project Manager; Michener Project Coordinator; and "Org B" Project Manager.

Given the list of stakeholders and resources above, in hindsight the project seemed to be well resourced; resourced by function and action, with a recognition of stakeholder

engagement. As a note of clarity, while this relationship and resulting project was focused on radiation therapy, with the installation of the heavy linac units on the 9th floor, supplemental weight bearing construction would ultimately be required below these 9th floor labs on the 8th floor. The space on the 8th floor was related to a major lab within the Medical Laboratory Sciences program, hence the recognition as a major stakeholder group to be engaged and included on all major discussions/consultations.

With the intent of agreement established through the Project Charter, the period between January 2010 and July 2010 focused on:

- Identifying the core issues to implementing the agreement
- Completing a formal Request for Proposal process (January 2010-April 2010) to select a design-build firm for the installation of the 2 linac units
- Series of meetings between Michener staff and Organisation "B" engineering staff to innovation process (design/create/build) related to unique linac specifications
- Series of meetings between Michener staff and "Organisation "B" software engineers to innovate (design/create/build) software emulation platform
- Manage the various internal/external implementation teams for final implementation in September, 2010

From an archival analysis perspective, an additional source of reference is the intranet website[9] created for the Michener community (faculty, staff, students, management, Board of Governors, etc.) titled "Organisation "B" Project." The intranet site acted as a single point of contact to obtain relevant information on the state of the alliance and the related implementation of the linac units. The intranet site included three major sections, including:

i) Main – outlined quick one-line status updates by date
ii) Timeline – production of images illustrating the timeline of construction development and related alliance activity
iii) Documents – collection of implementation updates and a presentation to the Michener community

[9] Modified URL can be found: http://my.michener.ca/nv/organisationb/index.php

Posted on this intranet site is a presentation to the Michener community delivered June 16th, 2010. The presentation acts as a general update to the mission, goals and expected timelines of completion. Of interest is the slide titled "Project Goals", identified as:

- To perform removal, construction and installation activities in the most effective way and with the minimal disruptions to the educational process.
- Engage all stakeholders, ensure transparency and openness of the project

These goals appear to be in alignment with the preceding sections and discussions related to mission, goals and community engagement.

In summary, to be effective in the design, development and installation of two distinct linac units, Michener, together with "Org B", would require the co-development of a dynamic capability in innovation to achieve the goals and aim of the alliance. The outcome to be achieved was distinct insofar as the capital equipment was a completely new design; the software/simulation modules were non-existent; and the installation of one, much less two linac units on a floor other than the basement "bunker" environment would require an innovative engineering approach. If successful and once established, Michener would look to continue cultivating the dynamic capability of innovation with "Org B" as new developments and solutions were designed/incorporated into the installed units. Beyond the dynamic capability of innovation, the intent was to leverage these assets in the pursuit of a dynamic capability in commercialisation with "Org A", but also in tandem with "Org B", where appropriate fit existed for both organisations.

Figure 9: Michener Site Visit to "Org B" UK Production Facility (Picture taken August 12th, 2010, courtesy of "Org B")

The archive picture above is significant for several reasons. Taken from the intranet site focused on the developments pertaining to the alliance with Michener and "Org B", the image provides evidence to the development of a dynamic capability in innovation. The image on the right is that of Michener's President & CEO, who visited the manufacturing facility of Organisation "B" in the UK, standing next to the main mechanical drum of the unique liner accelerator that was built to Michener's unique specifications, through exhaustive consultations between Michener faculty and staff and the engineering team of Organisation "B". This picture, taken before shipment to North America, provides evidence that the intent of the alliance, P&L Agreement, and operationalisation and implementation plan and conversations had culminated into the development of a uniquely designed and developed liner accelerator unit. To get to this point required the development of a new method to create or innovate this unit, demonstrated through the many collaborative design/development discussions.

The picture on the left is that of Michener's President & CEO speaking with one of the software engineers responsible for designing/developing the integrative emulation workflow engine which would simulate the treatment of a patient with a modified liner accelerator unit. It is important to note that while a solution had been

found to create the unique liner accelerator unit (hardware), at this point in time (August 12th, 2010) a solution to the development of the emulation software had not yet been resolved.

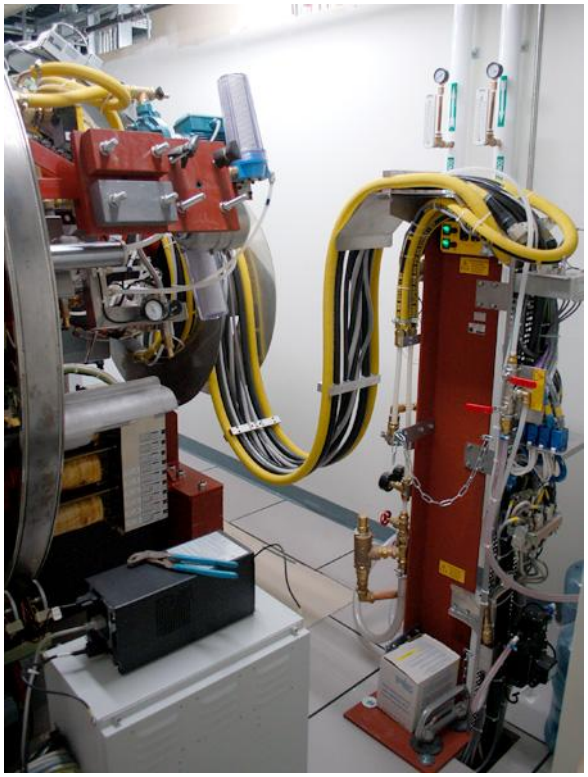

Figure 10: Mechanical Backroom for Linear Accelerator, courtesy of The Michener Institute

The process by-which these two-organisations came together in pursuit of establishing a dynamic capability in innovation and commercialisation will be explored in greater detail and specificity in the proceeding chapter titled 'Chapter 16 – Results: Initial Analysis.'

CHAPTER 16 - RESULTS: INITIAL ANALYSIS

16.1 INTRODUCTION

Where the previous chapter illustrated the nature of "Org A", "Org B", and the respective context/intent of each alliance relationship with Michener, this chapter will illustrate the results of this research program as informed by the vivid data provided by respondents from "Org A", "Org B", and Michener. For ease of illustration, the candidate has categorised the major results in thematic categories, according to both the nature of the data and the literature base in which it applies. Structurally, the candidate has attempted to provide a brief summary of the literature as it pertains to core challenges, gaps, and areas for contribution, before outlining the core findings through the illustration of core respondent data. Thereafter, the candidate has attempted to illustrate and clarify the theoretical relevance, value and overall contribution.

In the preceding Chapter 14 - Data Management & Statistical Analysis, within sub-section 14.2.5 - Forth Phase of Data Collection & Analysis, the candidate illustrated the final set of data codes utilised throughout the results section of this research program. In reviewing the content, sequence and interdependencies of these data codes, the candidate summarised the resulting relationships between data codes in the following diagram:

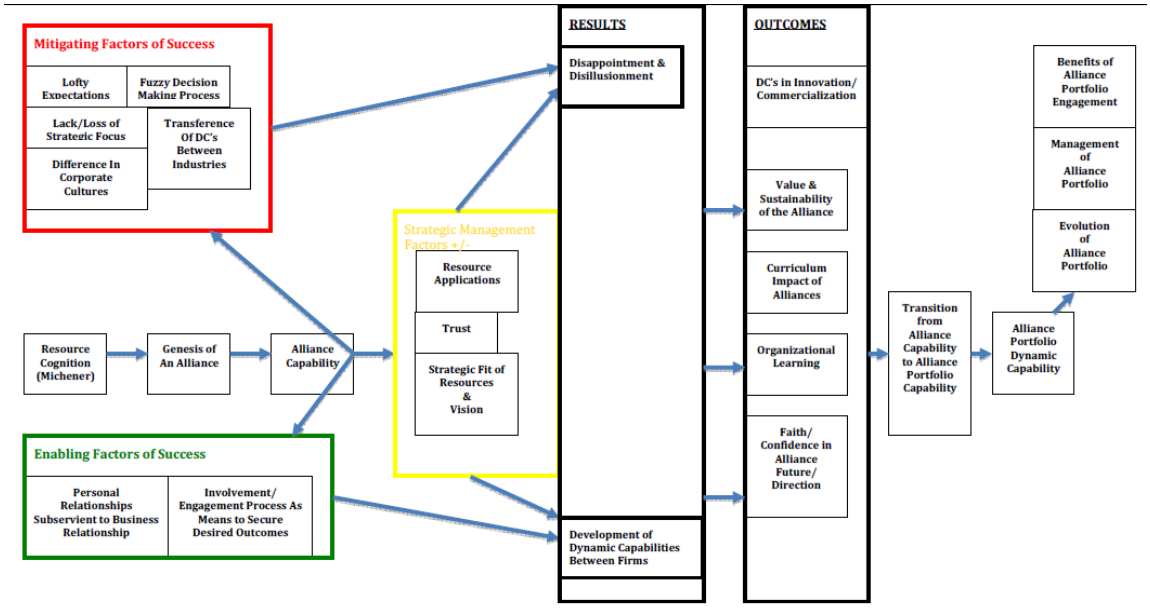

Figure 11: Finalised Data Codes & Directional Relationship of Data

As outlined in the case study protocol within Chapter 12 - Data Collection & Analysis: Case Study Protocol, the initial set of questions directed to each respondent aimed to establish the core definitions of the research program, and introduce the foundational concepts of (manager) resource cognition of each specific firm, as well as the genesis of the alliance as experienced by each respondent. Once examined, the more advanced concepts and variables pertaining to each alliance experience; the transition to the alliance portfolio; and the alliance portfolio were explored sequentially thereafter. The above diagram provides the reader a "clear line of sight" between the core data codes and the resulting concepts and development of applied theory in the proceeding sections.

Before proceeding to the description of the emerging themes, it is important to specify both the unit of analysis and levels of analysis as applied throughout this chapter. The unit of analysis remains consistent, which is the examination and exploration of the establishment of dynamic capability of innovation and commercialisation within inter-organisational relationships (including alliance relationships as part of the alliance portfolio, and the alliance portfolio itself). As developed in Chapter 9 – Research Methodology, the establishment of dynamic capability can be viewed from multiple perspectives, including micro, macro, and meso-perspectives (Rousseau and House, 1994; House, Rousseau, and Thomas-Hunt, 1995). This includes the perceptions of specific managers, executive and staff respondents (micro-level; Emerging Theme #1 & #2); the dyadic alliance relationship as part of the alliance portfolio (mico-level; Emerging Theme #3); and that of the alliance portfolio itself (macro-level; Emerging Theme #4).

The relationships between these levels of analysis will be leveraged in the development of the proceeding emerging themes, and combined into a meso-level perspective in the proceeding chapters, including Chapter 17 – Conclusions, and Chapter 18 – Contributions. Additionally, Figure 11 also represents a meso-level perspective (and theoretical outcome) insofar as both micro and macro perspectives are reflected in this model, resulting in a comprehensive, applicable framework.

16.2 EMERGING THEME #1 – BROADENING THE ALLIANCE MANAGEMENT TOOLKIT - THE DEDICATED ALLIANCE FUNCTION WITHIN ALLIANCES BETWEEN PUBLIC & PRIVATE FIRMS

16.2.1 Introduction

Arndt (2008) describes the role of the organisational alliance capability as "the basis for alliance success (p. 38)." Arndt leverages the organisational learning theory in suggesting that:

> "Basically, organisational capabilities, such as the alliance capability, are developed by the integration of knowledge. This knowledge integration accounts for subdivisions of the capability as well as the abstract and aggregated levels. Existing links from alliances establish routines, the transfer of the experience however – respectively the knowledge transfer – reflects the capability (p. 39)."

In referencing the high tendency for alliance relationships to end in failure, Kale et. al. (2002) identified that "Thus, while alliances can create economic value, they are also fraught with risk (p. 747)." Kale et. al. (2002) identified the lack of experience as a significant potential driver in alliance failure. However, the results of Kale et. al. (2002) suggested that "We find that a firm's investment in a dedicated alliance function is a more significant predicator of the firm's overall alliance success than a firm's alliance experience (p. 762)."

The above literature synopsis in critical in understanding the relationship between potential alliance success, the past experience of the firm with alliance relationships, and the establishment of a formal, dedicated alliance function. Before examining the complexities and interdependencies of these factors in the following section, the candidate aimed to examine underlying manager perceptions of the alliance agreement. The intent in examining these underlying perceptions and expectations of mangers from each respective organisation ("Org A"; "Org B"; Michener) is to illustrate the base foundation and context in which current and future alliance relationships reside. If there are profound differences amongst leaders within the same organisation, or between leaders of different organisations about the intent, value and purpose of a potential alliance, then the pursuit of establishing dynamic capabilities of innovation and commercialisation may be compromised from the very beginning, with the full impact and contribution to the alliance portfolio never being realised and/or maximised.

16.2.2. Results - Respondents Perspectives (from the data)

To explore the foundations in which the alliance function is based, managers from "Org A", Org B" and Michener were requested to provide their perspectives on what an organisation in the alternative sector (private or public) would be need to know in order to be successful with a firm in their respective industry. Respondents from the public environment (Michener) suggested that in order for a private firm to be successful in an alliance with a public firm, private firms "must understand that the bottom-line shouldn't be the focus in the short-term; that the public alliance partner is not and should not be treated as a customer, they are a partner; that resources invested may only yield benefits within the medium to long-term; that private business needs to be more flexible in working with public organisations; that the alliance relationship is not about making a sale; and that public industry is about service, and servant-leadership." For example, the following comment by a Director at Michener summarises this theme:

> "That the bottom line doesn't matter in this case. Yes, you are going to spend money and you may not get anything in return directly from us, but you have to look more at the future, that you're investing in a future product, and that while we have limited funds, that we would, the more that you can help us with procurement or purchases, the more free things you can give to us, the more we can help you innovate and give you better feedback. I think really trying to turn us into a customer just isn't going to work (Director I, Michener – Part I)."

Alternatively, respondents from "Org A" and "Org B" were asked the same questions and those respondents from private industry suggested that as a partner, "the public industry partner should match the commitment and resource contribution of the private partner; that private firms giving money to public firms does not represent a partnership; that investment of resources should lead to expected outcomes; that good partnerships illustrate transparency, good communication, intellectual horsepower, etc. from both partners; and that a donation is different than a partnership." For example, a representative from "Org A" stated:

> "So I think a proper, a good forward moving partnership would say, right, we're going to bring academic minds together from this side, the scholastic side, and engineering minds from this side, and meet in the middle and say what does this now look like? If I'm going to supply you with products, If I'm going to supply

> you with cardiac ultrasound simulators so you can train and do research with your folks to do cardiac ultrasound research and publish that research, I'm very interested in that as a partnership element if you will (Director I, "Org A")."

16.2.3 Synthesis of the Literature & Results, & Associated Contributions

In the summary Figure 11 above, which represents the data codes and the associated relationship therein, Managers perceptions of their respective resources is critical in determining existing/deficient organisational abilities (Danneels, 2011), resources and capabilities. This in turn drives the genesis of an alliance agreement/relationship, the collection of which begins to establish a formal or informal alliance capability. Kale et. al. (2002) suggests that firms with a small number of alliance relationships may not require a dedicated alliance function, but as those alliance relationships increase, the value in creating a dedicated alliance function is significant. As a public organisation, Michener has a series of clinical, academic, government, community and private-industry alliance partners. While the specific comments and insights described above may not necessarily be broadly representative in every alliance experience between public and private industry, the data and representative comments do suggest a difference in perception by each organisation of the purpose, resources, intents, attitudes and approach of the other partner. While this phenomenon may not be observed in every alliance experience between inter-industry organisations, it is perhaps exaggerated in those alliances involving partners from differentiated industries, where cultures, routines and expectations can be dramatically different. As experienced in Michener's alliance relationship with "Org A", where these perceptions are not effectively addressed, within the focus and findings of this research program, such a perception gap can contribute to the formation of lofty expectations; fuzzy decision making within the alliance; a loss of strategic fit and focus; and an inability to effectively transfer expertise and tacit knowledge and dynamic capabilities (innovation; commercialisation) from one industry to another. Over time, such experiences, if not resolved mitigate the essence of trust within the alliance relationship, ultimately leading to the inability to achieve the full scope of alliance benefits, including the development of dynamic capabilities between firms.

It is recognised that the establishment of a formal, dedicated alliance function (capability) is critical to a firm's overall alliance portfolio success (Kale et. al., 2002), and while there are many theoretical paradigms in which alliance relationships are

analysed, the organisational learning and dynamic capabilities perspectives provide particularly applicable insights (Arndt, 2008).

Emanating from the alliance capability (dedicated alliance function) is a series of enabling, mitigating and strategic management factors that affect the success of an alliance relationship. Holistically, the collection of these alliance relationships represents the alliance portfolio (Wassmer, 2010). Thus, the result and outcomes of a specific alliance relationship reflect the overall organisational success and resulting value of the alliance portfolio. Kale et. al. (2002) found that "our findings also suggest that alliances do create significant increases in market value (wealth) for firms (p. 762)." Thus, the ability to create successful alliances, consistently as represented via the cumulative alliance portfolio, has a direct impact to a firm's ability to create wealth and value. Within the aim of creating this capability, Kale et. al. (2002) suggests the creation of specific toolkit to support the dedicated alliance function (displayed below, p. 763):

ALLIANCE PLANNING	PARTNER SELECTION	ALLIANCE NEGOTIATION	ALLIANCE MANAGEMENT	ALLIANCE TERMINATION
* Value Chain Analysis Form * Needs Analysis Checklist	* Partner Screening Form * Cultural Fit Evaluation Form	* Negotiations Matrix. * Needs v/s Wants Checklist * Alliance Contract Template * Alliance Metrics Framework	*Trust-building worksheet * Alliance Communication Infrastructure	* Relationship Evaluation Form * Yearly Status Report * Termination Checklist

Table 2: From Kale, Dyer and Singh (2002)

While Kale et. al. (2002) provide a comprehensive set of actions and processes to undertake to support this function, the focus and degree of participants within this model is focused completely internal to the hub-firm. Based on the respondents data above relating to the misperceptions in the alliance relationship between inter-industrial organisations, in order to maximise alliance success the procedural toolkit above could afford to be expanded to include a "myth-busting" process as a means to support the partner selection and alliance management phases identifies above. The "myth-busting" approach has been a very successful methodology used in healthcare to bring professionals from varying disciplines/professions together to dispel myths and improve inter-professional communication and perceptions, thus leading to increased patient safety and outcomes (Fleming et. al. 2010). Utilising such a process between and

amongst potential alliance partners from different industries and environments (e.g. public vs. private) could yield significant and valuable insights about cultural, procedural and resources valuations and biases before the design/confirmation of a formal alliance contract. Additionally, once engaged in an alliance relationship, such a myth-busting process could contribute to the identification of core issues/challenges more effectively, thus mitigating the false/negative perceptions and the resulting impact to trust within the relationship. A Director from Michener summarised the opportunity in stating:

> "So right off the get go what are the assumptions? Put them on the table. And that's where I think the inter-professionalism would help in terms of the, I guess the knowledge building. You know, learning with, from and about each other so that we're dispelling…we're myth busting. And I think, you know, maybe that's one of the ingredients. It's that you myth bust right off the bat to then come at some truths and then look at whether those truths are enough to move forward with conversations on. Its one thing to have a eureka moment and say oh, okay, now I understand and I get it and it's another thing to sort of say I can work with that (Sr. Director I, Michener)."

The integration of a myth-busting process balances the internal host-organisations perspective, evaluation and bias of the other partner, thus leading to a more accurate understanding of the potential of the alliance, while also building trust and understanding of the strategic focus of the alliance, which mitigates fuzzy decision making and lofty expectations, ultimately contributing to the success of the alliance and establishment of dynamic capabilities.

16.3 EMERGING THEME #2 – EXPANSION OF UNDERSTANDING IN THE ALLIANCE MANAGEMENT FUNCTION AS REFLECTED IN THE DEDICATED ALLIANCE FUNCTION

16.3.1 Introduction

A second potential contribution of this research program focuses on literature gap whereby Kale et. al. (2002) suggest that "While we know that alliance experience is

important, we still lack knowledge with regard to what is involved in developing an alliance capability (p. 748)." Further, Kale et. al. (2002) state that:

> "Even in the context of the same set of partners, some studies suggest that prior experience of allying with the same partner helps the partnering companies in future alliances. Presumably, prior experience of this kind increases the success of future alliances with the same partner for several reasons. One, the firm in question may have greater commitment to make the alliance work given the trust among partners and, two, prior experience helps the firms build partner-specific routines of coordinating resources and tasks successfully with the partner. Overall, although many of these studies suggest 'prior experience matters,' they are basically silent with regard to how prior experience translates into a capability (p. 749)."

Lastly, Kale et. al. (2002) suggest "Our results show that although alliance experience is important, its impact seems to work through the creation of a dedicated structure to coordinate and leverage that experience more effectively (p. 762)."

16.3.2 Results - Respondents Perspectives (from the data):

In response to the suggestion that alliance experience matters, the impact to the alliance function itself was examined with respondents from "Org A", "Org B" and Michener as a means to clarify the subsequent alliance development and cultivation process (alliance capability established through past alliance experience).

The following framework illustrates the collective results of the data as it relates to <u>how</u> the alliance management process operates within the alliance function, as influenced by past alliance experience (there was a common agreement amongst the respondents from "Org A", "Org B" and Michener) through the following conceptual framework:

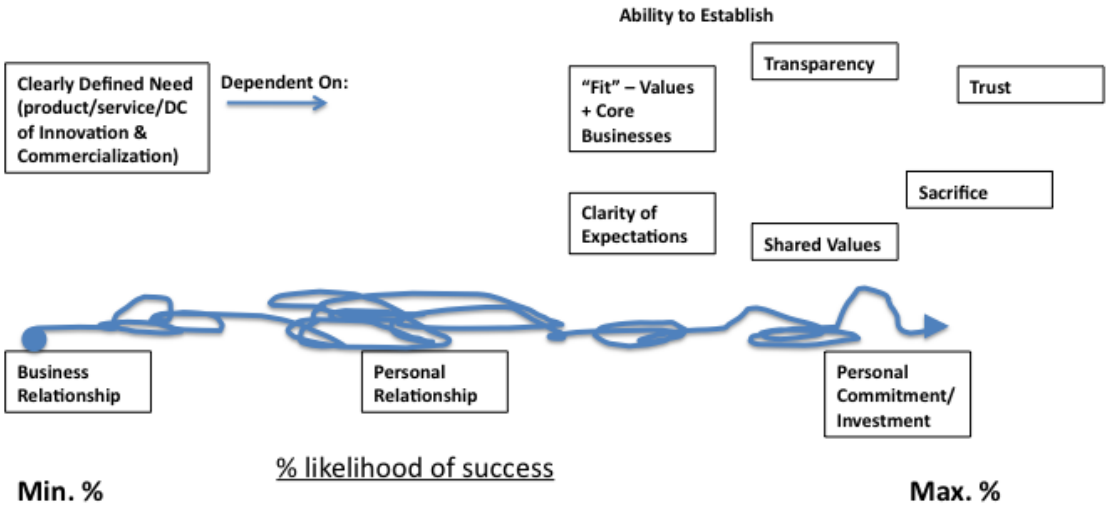

Figure 12: Expansion of Understanding in the Alliance Management Function as Reflected in the Dedicated Alliance Function (Kale et. al., 2002)

For the sake of clarity and intent, it is important for the candidate to reconfirm the focus of this research program, which is that rather than focusing on generic strategic alliances, and the contributions of success, the aim of this research program is to explore how organisations and managers can create the dynamic capabilities of innovation and commercialisation through the engagement of an alliance portfolio. Given the alliance portfolio is a collection of the egocentric alliances of the hub-firm (both within the past and current states) (Baum, 2000), the focus of two specific alliance case studies, identified as "Org A" and "Org B", act as case examples to be examined by which the greater phenomenon of the alliance portfolio can be explored. Thus, this chapter should be viewed within the above context, and not of generic alliance characteristics/behaviour.

Through a variety of questions, respondents were asked "how" each of their respective case examples either performed or failed to perform in building dynamic capabilities of innovation and/or commercialisation amongst firms within the alliance environment with Michener. Respondents were asked not only to reflect on the conditions and activities of success, but also to suggest "lessons learned" and "key takeaways." Examining these insights is important, given that the benefits of creating an alliance function can contribute to an organisations ability to create wealth (Kale et. al., 2002), where the lack of a sophisticated, intentional approach typically results in a substantial rate of failure (Whipple and Frankel, 2000).

In reviewing the summary findings of the respondents comments via the alliance management conceptual framework above, the respondents from "Org A", "Org B" and Michener strongly corroborate past findings of those characteristics of alliance success (Whipple et. al., 2000), including in the identification of clearly defined need/outcome (whether it be a product, service and/or a dynamic capability); which is contingent on the ability to achieve and sustain the elements of trust, transparency, shared values, strategic fit, clear expectations. An interesting insight was the inclusion and validation of the word "sacrifice." An executive from Michener explained that:

> "I think a strategic alliance cannot work unless both parties are willing to sacrifice something. At some point, in the relationship, somebody has to sacrifice something for the benefit of the other (Executive II, Michener)."

This comment and resulting theme may align to the findings and insights related to the preceding section, which examined the perception gap between private and public organisations within alliance relationships that attempted to create dynamic capabilities in innovation and commercialisation, and represents the context of which the above conceptual framework (Figure 12) is to be interpreted.

A second major insight of this conceptual framework (Figure 12) involves the degree of relationship building between partners, and the associated impact and development of the factors/contributors of alliance success (and thus promote the progression from the left-hand side of the model to the right-hand side of the model, representing a greater probability of success). While the role and support of Senior Management in alliance success is well understood (Whipple et. al., 2000), respondents within this research program felt that where the conditions of alliance success had been established, the nature and degree by-which those senior leaders (and by extension the alliance team) developed their respective relationships had a significant impact on the probability of success within the initial and potential future alliances.

Respondents indicated that while a business relationship amongst alliance partners was sufficient to secure some probability of alliance success, that this probability increased as the leaders and alliance teams were able to transition from a strict business relationship to a personal relationship, and from a personal relationship to a personal

commitment/investment. For example, an executive at “Org B” illustrates this insight (as represented in the above framework):

> “My feelings are that personal relationships is that the business relationship is subservient to the personal relationship. That's how I personally feel. Right. And you know, the day I'm waiting for is when we have a real business opportunity collectively, cause we'll just come to the very top of our list and get pushed really hard. And that the day we're going to have a real party (Sr. Executive, “Org B”).”
>
> And;
>
> “There was mutual respect. And I think that successful partnerships have that charisma and cohesiveness as a team, and mutual respect. That's really what it’s about, people, team, commitment to one another. Sure it is, you could put whatever company behind us, and then the question becomes, can you actually pull the strings and make that happen, and there's ...if we were at our competitor, we wouldn't have our strategic relationship here, I don't believe. We would never, they would say (forget) that, take as much money as you can give you that much, that's it right? That's right. Versus thinking outside of the box, and maybe having a different set of values right, and commitment (Sr. Executive, Executive I & II, “Org B”).
>
> So I think that really successful partnerships are based on that. These are the guys we're going to war with, right. They made a personal choice to make that commitment. I think that's what makes the difference. And I think we have that, we have had that from day 1 (Sr. Executive, “Org B”).”

This phenomenon was also validated through the interview process, whereby respondents, after asking to reflect on their respective experiences with each/both alliances, were presented a version of the framework above (Figure 12) and asked to qualify and/or adapt the model to best reflect their past experience and perceptions from “lessons learned.” In reflecting o the role of personal relationships and the established results of “Org B”, a Program Chair at Michener suggested:

> "…so its also how people make you feel right, so how that is very how did you choose a personal leader, well this person made me feel this way, I felt empowered, I felt respected, wasn't so much sometimes an activity that the individual did, its how that person felt. So I can see the personal, it's like, I believe in this project AND I feel that it will be a big success and rewarding and I'll be satisfied. I'll get some personal gratification out of it. I think it's important to human beings mostly (Program Chair I, Michener)."

The process line representing the transition between a business relationship to a personal commitment/investment is intentionally chaotic and non-linear (as demonstrated in the framework through a wavy line). A Sr. Director from Michener indicated that the relationship development process typically advances through "a series of tests (Sr. Director III, Michener)", and that these tests and challenges confirm, support and advance the development and richness of the alliance relationship. An executive at "Org B" explains the experience of the challenges in the advancement of the relationships:

> "I think in terms of establishing the trust quickly is an understatement. I don't think I've ever had a relationship of any kind, personal or professional that got to the wood that fast, to the point that you believed the BS right, it was like, ok, so these guys, it was 15 minutes and we said lets go to dinner. And I was, I had a fuse of about 8 minutes that night, and you guys were out of there, get lost. And it was synergistic and honest, and it just built because you...when we ask you to do a site visit or host somebody its 110%. And I think that when you stumble a little bit, the first thing we've done on both sides is that we apologise, and we get on the same side of the table and fix it right. I think culturally and value wise it's the people that are core to the relationship, they actually personally value those things. So when you value that type of relationship, and those are the ones you want to be in, you see it right away (Sr. Executive, "Org B")."

The executive respondent from "Org B" illustrates a link between establishing a personal relationship and commitment, and the role in supporting and cultivating trust, which is a significant contributing factor to alliance success (Whipple et. al. 2000). The respondent also illustrates the role in the personal commitment, establishment of trust, and resulting focus on effort within the relationship, and conflict management within

the alliance ("stumble a little bit…we apologise). Finally, the respondent suggests that sourcing and finding partners with these factors and attributes are desirable, in stating "those (alliance relationships) are the ones you want to be in." Final evidence to the critical importance of the role in establishing a personal commitment and the associated impact to those factors that contribute towards alliance success is a suggestion by an employee at "Org B" who suggested that "before (Michener's President & CEO) visit to the factory in the UK, this project was hanging by a thread." In the end, the fact that a dynamic capability of innovation was established and the end result achieved is valuable to contrast from a theory development perspective.

The advancement of the alliance relationship is aligned to the development of dynamic capabilities between firms. Rothaermel and Hess (2007) suggest that the current literature fails to appreciate the integration and interdependency between the level of the individual, firm and network, and its relation to creating and sustaining heterogeneity at any/all of these respective levels. The interdependency between the individual, firm and alliance portfolio is illustrated through the contrast of the experience via "Org A" and "Org B". For example, an executive at Michener explores this interdependency:

> "You know looking at those two cases and using those to kind of reflect. I think it's hard to generalise because of the number of independent variables that occur in these relationships. And how difficult it would be able to replicate those independent variables with any degree of consistency. And I think the ultimate success of commercialisation has a higher degree of likelihood, this is in hindsight, has a higher degree of success with "ORG B" than it ever would have with "ORG A". "ORG A" we tried to conceptualise it too early. Whereas "ORG B" were only coming to commercialisation after we built a very strong as you said, creative, innovative working relationship. There is a lot of trust that's here; there is a lot of honesty that's here. Which I think allows us to talk about commercialisation (Executive I, Michener)."

The respondents comment above suggests a necessary condition, in the advancement of the relationship, for the development of a dynamic capability in commercialisation between firms to occur.

In summary, the above framework (Figure 12) illustrates "how" alliance relationships are affected by past alliance experience, and the specific process in which alliance relationships progress or fail to progress within the alliance management process within the dedicated alliance function (Kale et. al., 2002).

16.4 EMERGING THEME #3 – EXPLORATION OF THE DEVELOPMENT OF DYNAMIC CAPABILITIES BETWEEN FIRMS THROUGH THE ENGAGEMENT OF THE ALLIANCE PORTFOLIO

16.4.1 Introduction

Whereas the preceding chapters outlined emerging themes in utilising myth-busting techniques within the alliance selection and management phases within alliances involving inter-industrial organisations (public and private); as well as a conceptual framework (Figure 12) illustrating the corroborated factors of alliance success, this chapter aims to explore the development of dynamic capabilities between firms (Wang et. al., 2007). Given the research design of this study, the candidate intends to leverage a "compare and contrast" approach in illustrating the fundamental differences in an alliance case study where the full scope of intended dynamic capabilities were achieved, and a case study where they were not (Yin, 2009). An important note of clarification is required before proceeding in regards to the compare and contrast style. Rather than drawing cause and effect assumptions between the case studies, which would involve a degree of inference by the candidate to the respondents insights (and thus potentially contributing towards a biased perspective) the candidate will alternatively analyse the coded responses and compare the themes through representative quotes.

In exploring the catalyst for dynamic capability development, MacIntosh & MacLean (1999) explain that in order for organisations to "contemplate and learn how to do things differently", dynamic capability development occurs within the "bifurcation zone." The literature has an established lens in utilising alliances and networks as a means to establishing dynamic capabilities of innovation and commercialisation (Aarikka-Stenroos and Sandberg, 2007). In regards to building capabilities through alliance portfolios, Rothaermel & Hess (2007) state that:

> "Industries characterised by complex and rapidly expanding knowledge bases, the locus of innovation lies within a network of learning composed of incumbent firms, new entrants, and research institutions, rather than within the boundaries of individual firms. Thus, to build new capabilities within an emerging technological paradigm, incumbent firms frequently need to leverage their external networks to source new technology (p. 901)."

Rothaermel & Hess (2007) also acknowledge the integration between the resource-based perspective, dynamic capabilities and alliance portfolios:

> "Although the resource-based view tends to focus on the importance of the internal asset base of the firm, researchers have recently posited that network relationships may allow a firm to leverage unique resource combinations. Dyer and Singh (1998) highlight relation- specific assets, knowledge-sharing routines, complementary resources and capabilities, as well as effective governance as antecedents to an interorganisational competitive advantage (p. 901)."

The drive to establish new dynamic capabilities through the engagement of the alliance portfolio, as represented in the context of specific alliance experiences (e.g. "Org A", "Org B"), is the focus of this chapter.

16.4.2 Results - Respondents Perspectives (from the data):

The necessity of resource cognition in establishing dynamic capabilities is well founded (Danneels, 2011). In exploring the development of dynamic capabilities (as outlined in Figure 11 above), it is essential that an organisation have an understanding of its current resource/capability base, resource/capability deficiencies, and desired end point (e.g. strategy). Barreto (2010) defines a dynamic capability as "…the firm's potential to systematically solve problems, formed by its propensity to sense opportunities and threats, to make timely and market-orientated decisions, and to change its resource base (p. 271)." Dynamic capabilities are developed in response to a dynamic or volatile industry (Wang and Ahmed, 2007). The alignment between the resulting dynamic capabilities and the firm's strategy is critical, insofar as the resulting strategic focus leads to a distinct, value creating set of capabilities, which in turn, Wang and Ahmed (2007) propose, have an indirect impact on firm performance. As described in a

previous chapter, the overall objectives for the alliance with "Org A" were focused on building a dynamic capability in innovation which would result in the construction and utilisation of a state-of-the-art simulation centre, whereby the curricular assets (capital) and expertise (curriculum) would be innovated/commercialised, with the proportional proceeds re-invested to support Michener's core academic business. Michener's alliance with "Org B" was initially focused on building a dynamic capability in innovation between firms to design/build a distinct linear accelerator for the academic environment, with commercialisation opportunities to be explored thereafter. A Michener executive describes the underlying need and conditions for pursuing an alliance with "Org A":

> "It all started when you know as a result of the curricular reform. Embedding the inter-professional collaboration (IPC) and the greater uses of simulation in curriculum, the recognition that the physical facility did not accommodate that curriculum in an optimal manner. And the fact that we needed to renovate the building and we specifically needed the opportunity to have flexible delivery space for simulation. That led to a master planning exercise, that led to a capital project submission to the MOLTHC and a whole series (Executive I, Michener - Part II)."

And similarly, the underlying need and conditions for pursuing an alliance with "Org B":

> "But that was at that point I think we were then at a mindset because of the move towards strategic alliances as a vehicle to address what had never been provided by our government funding relationship. That right from the get go it wasn't really interested in getting another proxy simulator as we had originally. You know wanted to do something that was going to certainly approximate the department the students would be working at when they were practicing as a radiation therapist. That meant getting a contemporary linear accelerator. That was there. Yes these are large, yes these are complex pieces of equipment but that I thought was what we needed to move forward (Executive I, Michener - Part I).; and

> "We leveraged this purposely; we've leveraged this extraordinary successfully, to address one of the things that I was told from the clinical partners when I first got here. That was that our students had to train on contemporary equipment.

> Training them on antiquated training, with operating protocols and safety protocols that were not in sync with what was being delivered in the field meant we were offloading a burden to the field which they could ill afford to provide any longer. So we needed to upgrade this stuff, and we had no money to do it…(Executive I, Michener - Part III)"

The focus in pursuing the alliance with each organisation was to support the core academic business and strategy of the organisation; thus the pursuit in creating a dynamic capability in innovation was to secure capital, resources, and/or capabilities to support initial and long-term organisational needs/strategy.

In terms of results, respondents indicated partial success in creating a dynamic capability of innovation and a failure to create a dynamic capability of commercialisation between Michener and "Org A." Respondents suggested dynamic capability of innovation was created between Michener and "Org B", with artefacts to suggest a dynamic capability of commercialisation is in the process of being cultivated.

Within these two case studies, in order to examine the conditions that respondents believed contributed or mitigated success in creating dynamic capability between firms, the candidate will leverage the conceptual framework in Figure 11 to highlight and discuss the illustrative data, and the resulting theoretical implications.

From a strategic management perspective, once Michener had established that an alliance agreement was needed/required in each case, and subsequent to the partner selection process as reflected in the alliance function (Kale et. al., 2002), the aspect of alliance management, and the role and impact such management has in creating dynamic capabilities between firms and cumulatively as an alliance portfolio, is central to understanding the factors that contribute towards achieving alliance objectives and an organisations overall strategy. Generally, in the case of Michener's alliance with "Org A", where respondents believed only partial success was achieved in evidence of the fact that the 20,000 sq/ft healthcare simulation centre was completed in part due to a financial contribution provided by "Org A." The Simulation Centre was essentially the environment intended to cultivate the alliance in building new curricular assets for Michener's academic programs and beyond. The capacity for this innovation and

resulting commercialisation would be supported through alliance teams in both organisations.

16.4.3 Factors Experienced Predominantly with "Org A"

Lofty Expectations

From a data response perspective, the factors that mitigate the successful pursuit to create dynamic capabilities of innovation and commercialisation were predominantly collected in reference to the alliance experience with "Org A." Within the coded data pertaining to 'lofty expectations', all 17 illustrative (coded) data examples were attributed to Michener's alliance experience with "Org A." During the finalisation of the alliance negotiation phase, and evolving into the alliance management phase (Kale et. al. 2002), respondents indicated the presence of lofty expectations within the alliance. A former manager with "Org A" stated:

> "I think, expectations that were setup right up front, rightly or wrongly, some ***expectations were quite lofty***, and when those expectations started to show signs of erosion and we weren't going to meet them, it was inadequately mitigated, in other words, there wasn't an adequate amount of effort put to realise why it failed, and that then impacted the ***trust*** and then we figured it was an intentional failure because of the lack of something from either side, bilateral, I think Michener lost ***trust*** in "Org A" because we did not mitigate the situation when things were going south, and vice versa, "Org A" thought Michener should add more resources or put more commitment towards other mandates or projects we had, and didn't, and so we lost ***trust*** in Michener's ability to (support) the alliance up (Former Manager, "Org A")."

The examination of this representative response is insightful for several reasons. First, the respondent from "Org A" suggests that the expectations for success in the alliance were lofty from the origination of the alliance, which would suggest that the aim of transferring and/or building capabilities would be compromised from the very beginning. Secondly, the respondent suggests a directional link between lofty expectations from the genesis of the alliance, the perception and/or realisation of an inadequate response, and the subsequent impact (loss) of trust. While to be explored in a subsequent chapter, this research program corroborates past research (Whipple et. al., 2000) in identifying the establishment and cultivation of trust as a major determinate in

alliance success (in this case the pursuit of establishing dynamic capabilities in innovation and commercialisation). Respondents indicated lofty expectations originated from a series of factors, including the fact that "Org A" was relatively new to entry within the healthcare industry; that unlike the alliance with "Org B", the initial focus of innovation was on high-end conceptual developments pertaining to curriculum and pedagogy of simulation in healthcare, rather than on the design/development of a physical asset; competing strategic priorities; a lack of strategic fit between cultures (public vs. private); and inadequate decision making techniques. The compounding effect of these mitigating factors, regardless of the directional occurrence in which they are experienced, are likely to erode trust and pro-long challenges, and ultimately lead to disillusionment and disappointment, as illustrated in Figure 11.

Difference in Corporate Cultures

Respondents identified a difference in corporate culture as an additional factor that mitigated alliance and dynamic capability development success. Respondents noted the difference in the two organisations, identifying differences in size; purpose (corporate vs. educational; profit vs. non profit); business model approaches between firms; and results. Thematically, throughout the collection of coded data, respondents noted the impact of a profit driven, traded corporate focus and the associated challenge of functioning/operating within an academic, non-profit environment. Without debating the merits of this theme, its does seem from the data and the resulting impact with other key data codes, including the ultimate result of disillusionment/disappointment, that this perception (on short term shareholder return, EBITDA) had an impact to the outcome and perceived experience of this alliance. A Director from Michener characterises this theme in the representative comment:

> "You know, again, it comes down to the ***culture***. Their expectation was bottom line we need to see dollars. We're public sector. It's not about the bottom line for us, it's about the quality. So, how do you ***blend*** those two in a … through a thoughtful discussion and conversation where, you know, we're coming in like this but we end up here. So that everyone's expectations on the revenue driving side is managed such that, okay, you know what, we're not going to turn a profit. Okay because we've got to figure out the quality piece. And then here, we need to eventually drive a profit so we need to increase what we're doing vis-à-vis the quality. So, when you've got two organisations whose bottom line

> focus is so, really polarised, it's kind of … you have to work even harder at bringing it back and there has to be some patience and allowances for things not quite working (Sr. Director I, Michener)."

While supporting the perspective of a non-cohesive culture, the above comment also illustrates the value in establishing a dedicated alliance function, whereby a comprehensive cultural fit analysis and review is completed as part of the due diligence process within the partner selection phase (Kale et. al., 2002). Failing that, this perceived cultural divide could also be effectively mitigated through a formal "myth-busting" intentional conversation amongst alliance partners post-negotiations, as a means to challenge and clarify perceived gaps, biases and perceptions.

As a means to foster a common culture, a Director from Michener suggested the following:

> "As you were saying that, the best way I could think of in my opinion would be to have employees from both organisations, A, and B, to ***create a third entity*** that becomes the innovative core, but they don't directly report to A and B, something where you can take that context out, you there not so much of that ***(culture) clash***, that you were for company A, you work for company B, but if we work together, we form a third party, we could build off on that, I think that model would be a lot more conducive, because we're not so much restricted by the rules and regulations of each others (Director I, Michener – Part I)...."

Conceptually, the comment aligns to the findings of Rich (1994) in examining the concept of skunk works in supporting innovation. Rather than an internal entity separated from the main firm, the respondent in the following comments suggests the establishment of a "proxy-entity" between firms where a common culture of innovation and commercialisation can be established and cultivated (rather than a distinct entity such as a joint venture):

> "Exactly, its kind of like we're ***partnershiped (sic) on top***, but then this was below, maybe reports to both sides, but it has to be more independent, which is the best method. If we try and collaborate work between two companies separately, there's (sic) always barriers on both sides. So if there's a way to

> eliminate those barriers, you know, policies procedures innovation moves quickly, you need to be able to make quick decisions, even basic things, purchase whatever, a laptop, hardware, whatever the heck it is, I don't have to go through due process to do that (Director, Michener – Part II)."
>
> and
>
> "Well I think that would create a ***common culture***, and that would maybe gel a little bit better. When I think they're separated, I think they're more politics involved, so that same thing, I want to make a basic decision about buying a laptop, who buys it, you have to argue, and its a stupid point to argue over and it slows everything down. If you become a separate entity, you say look, here's your budget, here's what you have, here's what the end goal is, and just let it run, more independent (Director, Michener – Part II)."

The respondent makes reference of having the ability to make a simple decision, such as procuring a laptop, and the impact such a culture has on mitigating barriers (such as fuzzy decision making) and resulting impacts (such as a loss of trust) in pursuit of establishing dynamic capabilities of innovation and commercialisation between organisations. Ultimately, respondents felt the creation of a common alliance culture would foster the development of dynamic capabilities in supporting the ability to make quick decisions; operate in a less political and independent fashion; be hands-off, autonomous; act as an effective resolution to bumps/challenges; and enhance/cultivate personal relationships, a key determinate for alliance success.

Fuzzy Decision Making Process

Compounding the role of different cultures and the mitigating factor of lofty expectations, respondents (who were all Michener respondents in this particular data code) indicated that the decision-making process and hierarchy was described by respondents as autocratic, convoluted and non-transparent. A Director at Michener summarises this factor in stating:

> "Exactly, ***it (lack of decision making capability between firms)*** slows everything down, ***it*** just hurts the relationship, the next time they want us to do something, maybe I won't do it as quickly as I should, because you're dragging

> your feet, basically, us thinking its them, as apposed to a third party, we're all in this together, from my experience with "Org A" that's how it kind of came down (Director, Michener – Part II)."

While lofty expectations and a fuzzy decision process collude together to mitigate success, the impact to trust is represented in the described limited performance based on perceived non-commitment between individuals from different organisations.

As with the data collected within the "lofty expectations" data code, the data collected within the "fuzzy decision making process" exclusively reflected the alliance experience with "Org A"; as did the data codes of "different corporate cultures (factor)"; "lack/loss of strategic focus (factor)"; "fuzzy decision making process (factor) "; "transference of capabilities between industries (factor)"; and "disappointment and disillusionment (result)".

To proclaim that such an alliance experience and outcome between Michener and "Org A" is a "failure" would be elementary and limited in both its perspective and assertion (Christensen, 2003). While the original goals of the alliance may have resulted in disappointment, critical learning about what business lines to engage in; what the strategic focus of the entity should be; and how the alliance function and portfolio should evolve were realised by both organisations.

It is also important to note that the above inferences and deductions are not the result of the lack of ability, commitment or expertise of a single firm in the alliance, nor is the lack of intended success the result of what one firm did or did not accomplish. The mitigating factors of success work in systemic cycle. Where a difference in corporate cultures results in lofty expectations and a fuzzy decision making process, it can be deduced that within such an environment, the ability to achieve strategic clarity and focus; effective resource applications; establishment of trust; and alignment of visions would be significantly compromised. Each mitigating factor realised in an alliance relationship has profound implications to the success of the alliance relationship and the resulting value of the alliance portfolio to the hub-firm. For example, the existence of lofty expectations within an alliance containing two organisations acting in good faith can quickly result in resource requirements from one or both firms that neither had intended nor could provide to the alliance. This inability complicates the decision

making process, strategic fit, trust and ultimately the results of the alliance environment. While the candidate has employed a variety of conceptual frameworks and diagrams throughout this dissertation to encourage clarity, efficiency and effectiveness of research concepts, it is critical to re-enforce the degree of complexity in which a single alliance relationship often operates. This complexity, risk and subsequent opportunity are compounded in exponential ways when extrapolated to the alliance portfolio.

16.4.4 Factors Experienced Predominantly with "Org B"

As with the preceding section outlining factors that were identified exclusively with "Org A", the data codes of "involvement/engagement process as a means to securing desired outcomes"; and "personal relationships subservient to business relationship" were experienced predominantly in reference to "Org B". While the data code of "personal relationships subservient to business relationship" was developed in the preceding section in regards to identifying the role of establishing a personal commitment within an alliance, and the associated impacts to trust, conflict resolution and reputation as a valuable partner, the impact of this relationship to the development of dynamic capabilities will be examined and clarified.

In regards to establishing a dynamic capability of innovation between Michener and "Org A", a contributing factor was the establishment of a personal commitment amongst the respective teams and leaders. For example, an executive at "Org B" reflects this association:

> "So I think that really successful partnerships are based on that. These are the guys we're going to war with, right. They made a ***personal choice*** to make that ***commitment***. I think that's what makes the difference. And I think we have that, we have had that from day 1 (Sr. Executive, "Org B")."

> "I think ***personal relationships***, and ***commitment***, and the pretty much everyone who bought into this was intrinsically motivated to do something that hadn't been done. So the fact that you're going to tell people that we took the wall off a 9th floor building and put these linacs in there....I've told that story so many times (Sr. Executive, "Org B")."

Both comments reviewed together provide valuable insights and opportunity for theoretical development. The respondent suggests that the degree of commitment required was "a personal choice", one supported by the innovative challenge and opportunity at hand, insofar as the goal was to create and install "something that hadn't been done." The respondent also indicates the belief that such a commitment was established at the very early stages of the relationship ("day 1"), and that the integration of the two alliance teams were "the guys we're going to war with", illustrating a high degree of personal commitment to the goal and establishment of a dynamic capability of innovation itself. In the final comment, the respondent seems to take pride and illustrate a sense of amazement about the end result of the dynamic capability, providing some evidence that the capability and intended outcome was achieved.

The ability to transition the alliance relationship between leaders/teams from a business driven relationship to a personal commitment seems in this case study to be a critical factor for success. The way in-which such a personal commitment can be established (the "how") seems to be encouraged by elements such as the degree of challenge; clear, open and transparent communications; and the establishment and cultivation of mutual respect. Within this specific alliance with "Org B", the ability to establish such a personal commitment, coupled with the full stakeholder/community engagement, contributed towards effective resource application decisions, the establishment of trust within the alliance relationship, and an exceptional strategic fit between respective organisational resources (Barney, 1991) with the aim of creating a dynamic capability of innovation.

16.4.5 Comparing & Contrasting the Alliance Experience of "Org A" and "Org B" in Pursuit of Establishing Dynamic Capabilities of Innovation & Commercialisation

While factors that were exclusive to each case have been examined, this section will examine those factors that were represented in both case studies. Of those factors, the two most dominant factors illustrating the successful and/or unsuccessful development of dynamic capabilities between firms were trust and organisational learning.

Organisational Learning

The role of organisational learning within and amongst firms is well established as a core factor in the creation of dynamic capabilities, and has been traditionally viewed as a capability onto itself (Lorenzoni and Lipparini, 1999; Wang and Ahmed, 2007; Arndt,

2008). While the candidate does not intend to include or develop a focus of the knowledge based theory (KBT), the role of organisations ability to absorb and capitalise on critical learning (Wang and Ahmed, 2007), and the role in developing dynamic capabilities between firms will be explored within the healthcare education environment. Lorenzoni et. al. (1999) state that in the examination of establishing dynamic capabilities, it is:

> "important to investigate the mechanism by which firms accumulate and disseminate new skills and capabilities to reply promptly to changes in the competitive environment despite conditions of path dependencies and core rigidities in technological and organisational processes. The possession of dynamic capabilities leads to several fundamental features of strategic manoeuvring: high response capability, reduced time-to-market, innovative capability (p. 320)."

Specific to investigating said mechanism, Lorenzoni et. al. (1999) suggest that "organisational learning capability is especially critical since idiosyncratic advantages naturally erode over time, and an intensive exchange of knowledge, deliberately delivered, may help reinforce strategic positioning (p. 320)." Thus, the central role of organisational learning in establishing and re-generating dynamic capabilities is well established. Where the context of previous research studies has been in the manufacturing industry (Lorenzoni et. al. 1999) the aim of this chapter is to illustrate this role within the context of two-case studies within the healthcare education industry.

In regards to Michener's experience, the organisational learning process and associated impact is represented in an interview comment from an executive member:

> "It's (alliance capability role in establishing dynamic capabilities in innovation/commercialisation) absolutely important, I think its essential, that's why I was pausing. And I think the link to essential is I don't think we would be in the mindset of creativity and innovation that we are if it weren't for the alliance issues. I think going back to what are the key things necessary for the portfolio management, what we have now, we have a ***confidence in this approach and this rationale***. And so we're willing to throw challenging problems at that conceptual approach to doing business that I don't think you

would do if you didn't have the confidence. And as I say, I'm sitting right now looking at our latest example, and if the wheels fall off this for one way or another, we're not just going to walk away from this. We almost have a plan C. We've got a confidence that we will find a solution to this...it may not be the preferred, it may not be as timely as we might have been able to pull if off we'd done if in the pure alliance sense, but we will get there. And, I don't think this organisation had that degree of confidence 8-years ago. It was just like, please sir, no, oh shoot. What else can we do? It's that kind of, I think that its that what else can we do issue (sic). If they don't pay for it, what else can we do? Well, we ***found out*** there are a lot of things we could do that's there. We didn't have that before (Executive I, Michener – Part III)."

The respondent illustrates a series of important factors. First, the respondent seems to identify the necessity and significance of the alliance experience in creating an organisational capability in managing an alliance portfolio, for the purposes of establishing dynamic capabilities within innovation and commercialisation, itself an example of organisational learning. The respondent identifies the role of the alliances and resulting alliance portfolio in solving "challenging problems" at the organisational, or strategic-level. The respondent also suggests that this is a newly established ability and approach, achieved within the last 8-years, and that such a capability has had a direct impact to the organisations ability to solve core, strategic challenges (resources and capabilities) and new processes to accomplish such needs/requirements. Lastly, while the comment is in reflection and context of "Org A" and "Org B", it should be noted that the respondent refers to this capability as a means to solve challenges and enhance overall strategic manoeuvring (Lorenzoni et. al. 1999) beyond of the focus of these two initial case studies. The establishment of an alliance capability, and in-turn an alliance portfolio capability, act as a source of fuel and nourishment for the development of dynamic capabilities within the current, and future-state. This is summarised by the following comment from an executive from Michener:

"We wouldn't be here if we hadn't done the alliances. So you know the alliance exercises as we are manifesting them here are ***learning exercises*** for us. That's what frustrates me when people think that they're nothing more than a way to get a cheap price point on a piece of equipment. That's actually not it at all. If they allow us to ***learn*** and they allow us to ultimately leverage the organisation

> in a different direction, then it's a win-win all the way down the issues (Executive I, Michener – Part I)."

Organisations also learn from those alliances that were not successful in the full scope of the intended objectives. In describing the pursuit in establishing a dynamic capability with "Org A", an executive at Michener categorised the outcome as "… the whole commercialisation issue was a failure right up." That said, the same Michener executive indicated:

> "I think we've ***learned*** a lot. Both in the positive and negative sense about commercialisation. It wasn't a functionality of the organisation 5-years ago to talk about commercialisation in any way shape or form. I think the alliances have given us the capability as well as a capital asset level you know that allows us to even consider capitalisation. There are a few factors going on here. So it's been positive in that sense (Executive I, Michener – Part I)."

The respondent, while acknowledging the unsuccessful attempt in establishing a commercialisation capability through an alliance with "Org A", suggests and evolution to the learning, including the establishing organisational awareness of what constitutes a dynamic capability in innovation, and what the initial "factors" of such a capability might be. Perhaps in this context, in determining what factors were not successful in developing a dynamic capability in commercialisation, the outcome informs other potential factors to be explored.

Interestingly the organisational learning process within an alliance can create new dynamic capabilities of innovation and commercialisation in the other partners in unforeseen ways. Having worked directly with Michener over the past ~5-years, learning about the educational approach and industry, "Org B" has expanded its application of educational solutions from an after-sales-support process to one of competitive value and potentially competitive advantage. An executive from "Org B" describes the decision to build a new educational centre:

> "Well certainly it (innovation/experience with Michener) impacted our behaviour. We're dumping $2.5 million in a training, education centre in Atlanta. Without a business plan. Because I brought 4 people to Toronto to have dinner

and said look, and we don't make $2.5 million dollar investments without business plans (Sr. Executive, "Org B")."

The establishment of a dynamic capability in innovation with "Org B" has resulted in "Org B" pursuing new capabilities (e.g. organisational learning, and the role of education curriculum to the full-solution product offering) as demonstrated in the above "behaviour"/decision, and approaches to their core business in ways in-which may or may not directly involve Michener as an alliance partner. This innovation (creation of a dedicated educational centre) will enable "Org B" to create new capabilities related to innovation and commercialisation that may have a cyclical impact to the alliance with Michener, and thus to Michener's alliance portfolio itself. The rich interplay between developing dynamic capabilities within a dyad alliance relationship (Michener and "Org B"), the utilisation of such a dynamic capabilities within and external to the alliance dyad ("Org B" in the competitive marketplace); the advancement to this capability within the external environment, and then full/partial re-incorporated into the alliance dyad (Michener and "Org B"), and thus alliance portfolio suggests a non-linear, but ultimately valuable capability advancement process. This process also contributes towards the gap in the RBV literature pertaining to where such VRIN resources are acquired (Gulati, R., Nohria, N. and Zaheer, A., 2000). The above experience with Michener and "Org B" suggests an initial melding of resources (resource cognition) with the partner firm to acquire new resources to pursue new dynamic capability development. These new capabilities, emanating from the dyad alliance relationship, are advanced and developed through application within and external to the dyad alliance relationship.

Trust

Trust has been identified as a significant, critical factor related to long-term alliance success within the food and healthcare industries (Whipple et. al. 2000). Gulati et. al. (2000) states that "The presence of inter-firm trust is an extraordinary lubricant for alliances that involve considerable inter- dependence and task coordination between partners, (and) firms with prior network connections are likely to have a greater awareness of the rules, routines, and procedures that each needs to follow (p. 210)." In examining the factors necessary for organisational learning in creating dynamic capabilities, Lorenzoni et. al. (1999) suggests that the shared alliance experience over

time supports the cultivation of trust, thus leading to lower transactional costs and bureaucratic administration.

Based on interviews with respondents from “Org A”, “Org B”, and Michener, the development of trust proceeded on different paths for each respective alliance. A former manager from “Org A” identifies the concept of lofty expectations within the alliance:

> “I think, expectations that were setup right up front, rightly or wrongly, some expectations were quite lofty, and when those expectations started to show signs of erosion and we weren't going to meet them, it was inadequately mitigated, in other words, there wasn't an adequate amount of effort put to realise why it failed, and that then impacted the ***trust*** and then we figured it was an intentional failure because of the lack of something from either side, bilateral, I think Michener lost ***trust*** in “Org A” because we did not mitigate the situation when things were going south, and vice versa. “Org A” thought Michener should add more resources or put more commitment towards other mandates or projects we had, and didn’t, and so we lost ***trust*** in Michener’s ability to (support) the alliance up (Former Manager, “Org A”).”

The respondent describes the process by which trust was eroded and challenged through the perspectives of both organisations. At some stage, regardless of the factual basis of these perceptions, the profound loss of trust results, and the objectives in building dynamic capabilities between firms significantly mitigated/compromised. In a preceding chapter the candidate suggests a ‘myth-busting’ approach, traditionally used within inter-professional healthcare teams as a means to improve patient outcomes and experience, as a means to support such conversations within the management of an alliance between inter-industrial/sector organisations. A respondent from “Org A” summarised the factor of trust in the alliance over time in stating “It (trust) didn't evolve at all...I think trust was probably at its highest at the fire side chat (point-in-time represented in the archival analysis chapter through the “Spirit of the Alliance document) …we went down exponentially after that (Former Manager, “Org A”).”

In examining the role of personal relationships within the alliance within a proceeding section, an executive at “Org B” stated “in terms of establishing the trust quickly is an understatement. I don’t think I've ever had a relationship of any kind, personal or

professional that got to the wood that fast (Sr. Executive, “Org B”).” With trust established at an early phase, the cultivation of trust is supported in organisations achieving/producing what they have committed to within the alliance (Whipple et. al., 2000). A key difference to note between Michener’s alliance relationships with “Org A” and “Org B” was that in the case “Org A” was pursuing the development of dynamic capabilities in a newly established industry (healthcare education; largely through the transference of capabilities from aviation simulation); alternatively, the pursuit of developing dynamic capability of innovation with “Org B” was in the respective core business industries of both respective partners. An executive from Michener summarises this insight:

> “I think we would need to do better to work with large, well-established players and whatever their particular area of specialty or niche may be. I think where we’ve been challenged is where, "ORG A" is a good example where a large established player trying to play a new game. "ORG B" is not trying to play a new game. They’re trying to play their existing game differently and have us play a role in that. I think we’ve been more successful there (Executive I, Michener – Part I).”

From a theory development and contribution perspective, the comparative narrative and respondent comment above suggest a corroboration of contemporary strategic management theory, expanded to the development of dynamic capabilities between organisations, to ‘stick to the knitting’ (Peters and Waterman, 1982), whereby the development of dynamic capabilities are pursued within the existing core business industries of each respective alliance partner.

The factor of trust also has the impact of lowering management/coordination costs within the alliance, and in some circumstances, mitigates the reliance and/or need for progressive contract documents/alterations, etc. (Lorenzoni et. al., 1999). In comparing the role of trust and the resulting impact to the resulting contractual approach for “Org A” and “Org B”, an executive at Michener reflected:

> “You notice one of the things with "ORG B" when we talk about commercialisation there’s no questions of NDAs (Non Disclosure Agreement). Or any of that trappings that’s going on. In "ORG A" we had to codify the

> commercialisation and lock it down and we almost, negotiations, almost broke down. Because of certain comments the room had made about the commercialisation (Executive I, Michener – Part I).

Again, from a theory building perspective, the respondent confirms that during the pursuit of commercialisation opportunities, which tend to include extremely sensitive organisational information (such as specific resource standings; existing partner relationships within the alliance portfolio; access to market; etc.) the requirement for an NDA with "Org B" has not been required, while the experience with "Org A" seemed to be rather laborious and complex. The respondent also illustrates a link between trust and the pursuit of developing a dynamic capability in commercialisation within both case studies.

The factor of trust has been contrasted in each case study, illustrating the impact to the end result, either leading to disillusionment and disappointment, or the establishment of dynamic capabilities between firms. The comparison of case studies corroborates that in alliance relationships within healthcare education, amongst public and private partners, the early establishment and cultivation of trust is a critical factor in the development of dynamic capabilities, and alliance success.

Outcomes Perspective – Disillusionment & Disappointment, and the Development of Dynamic Capability

In the proceeding sections, factors that both contribute and mitigate the development of dynamic capabilities between firms have been examined. Ultimately, in the context and comparison of these 2-case studies, respondents indicated a partial accomplishment in the development of a dynamic capability in innovation and disappointment in establishing a dynamic capability commercialisation with "Org A"; whereas respondents in context to case study involving "Org B" indicate a development of a dynamic capability in innovation between the two organisations, with the evolution of a commercialisation capability in the early phases of development. As illustrated in the preceding chapters, while the aim and objectives of each case study are similar (development of dynamic capabilities of innovation and commercialisation), the context and variables in which each case unfolded were different. More specifically:

- "Org A" was a new entrant to the healthcare education industry and aimed to transfer existing dynamic capabilities of innovation and commercialisation from one industry to another; where "Org B" is an established firm within their core industry and was applying existing capabilities within their core business to a new challenge/opportunity;
- The alliance with "Org A" was focused on the development of a physical asset (simulation centre within the applied health sciences) and once established, services (curriculum/product innovation and commercialisation); whereas the focus of the alliance with "Org B" was primarily on designing/developing a new adaptation of a product and complete innovation of an emulation module to interface with the product, with commercialisation efforts commencing a significant time thereafter (6-12 months);
- The established relationship with "Org A" remained primarily a business relationship; whereas the established relationship with "Org B" quickly evolved to a personal commitment between executives/teams, and has maintained and grown since this initial project;
- The factors of trust and organisational learning were strong themes in respondent's comments pertaining primarily regarding "Org B"; whereas the themes of lofty expectations, cultural fit and fuzzy decision making process pertained primarily to "Org A".

These factors, experienced within the respective context, ultimately resulted in the development of dynamic capabilities between firms or in disappointment. Where the development of dynamic capability was successful, respondents indicated that they resided both within and between the respective firms. Respondents indicated that both parties were critical but not sufficient for the establishment of dynamic capabilities, and that the factors outlined above were critical in this pursuit. One executive summed the impact of establishing dynamic capabilities between firms in the context to Michener's core business of healthcare education:

> "Which is the kids are now either depending on the discipline, being trained in a very contemporary way, or they're about to be, and that's what we should be concerned about as an educator. Is that they are, and those 3 things that I heard out there, they had to have all their basic skills when they got to clinical; they

had to be trained on the contemporary equipment, with knowledge of contemporary operating knowledge and safety protocols for that equipment; and they had to be trained as members of an interprofessional team, not as a single profession. Those are still the big drivers of what we're doing with the curricular reform, and we're way closer to having those 3 big things achieved, and I've never said, and I never would that's that's end sum game of this whole issue, because there will be another 3 items that come out next, but its the next iteration, its the next go around for this organisation, and in another 5-8 years, because this will be the norm. They'll have their basic skills; they'll contemporary, and they'll come out there having the knowledge of being part of the team, so now someone else will come and say, yeah, but they need A, and they need B, and they need C, well that's fine. That's what education is all about, its never an end sum game, its never finished, but the alliances have been a key organisational response to allowing us to move those markers that were there, so yeah, I think we're imminently successful on multiple of levels (Executive I, Michener – Part III)."

From a theoretical perspective, the respondent illustrates the three strategic drivers in building an innovative dynamic capability to support the newly established curriculum model, in the context of alliance relationships (Michener's alliance portfolio). This insight aligns to the basic essence of dynamic capabilities, whereby new ways of doing things are required to succeed in new and volatile environments. Once established, this process continues to evolve, whereby new environmental developments require new ways of doing things yet again. The above response acknowledges this process in stating that "in another 5-8 years" there will be new strategic directions. From a theoretical perspective, the evolution of a firm's capabilities over time are strongly supported through the engagement of an alliance portfolio, the focus of the proceeding chapter.

16.5 EMERGING THEME #4 – THE EXPLORATION OF THE ROLE OF THE ESTABLISHMENT OF AN ALLIANCE CAPABILITY AND THE ALLIANCE PORTFOLIO CAPABILITY, AND THE RESULTING MANAGEMENT & EVOLUTION OF THE ALLIANCE PORTFOLIO

16.5.1 Introduction

The role of the dedicated alliance function and the relationship and impact to the alliance portfolio is suggested by Kale et. al. (2002):

> "The dedicated alliance function offers a tool for leveraging experience across the alliance portfolio and becomes a stronger predicator for alliance success than alliance experience alone (p. 40)."

While primarily focused on the theoretical lens of organisational learning, Arndt (2008) explores the relationship between the establishment and subsequent impact in establishing an organisational alliance capability in relation to the value and outcomes of the alliance portfolio. Kale et. al. (2002) examined the relationship of establishing the alliance portfolio and its relationship to firm performance (defined via both stock market return and manager perception). In examining the benefits of alliance portfolio participation, Arndt (2008) categorises private versus common benefits:

> "Private benefits are those (learning) spill-overs that only benefit the firm, excluding the focal alliance processes. Common benefits, however, are generated from the partnership for both sides. They equal the learning effects from the alliances for common activities (p. 36)."

Wassmer (2010) illustrates the many theoretical lenses by-which alliance portfolios can be explored, including the dynamic capability lens of choice within this research program. Wassmer (2010) conducted a comprehensive review of the existing literature base pertaining to alliance portfolios, and categorises the current literature in three distinct areas, including the emergence, configuration and management of alliance portfolios; and provides a summary table of recommended future research opportunities, including the primary areas of contribution of this research program:

- "Clarify how alliance capability on the single alliance level is different from alliance portfolio management capability (Wassmer 2010; p. 162)."

- "Examine the role of the dedicated alliance function in alliance portfolio management (Wassmer 2010; p. 162)."
- "Understand the costs and benefits associated with different types of alliance portfolio configurations (Wassmer 2010; p. 162)."
- Explore the evolution, management of the alliance portfolio (Wassmer 2010).

The following chapter will explore these research areas with the aim of contributing towards the overall theoretical understanding within the context of an alliance portfolio of a hub-firm in the healthcare education industry.

16.5.2 Progression from Alliance Capability to Alliance Portfolio Capability

While some researchers have explored the relationship between the establishment of a dedicated alliance function/capability and the alliance portfolio (Kale et. al., 2002; Arndt, 2008), the relationship as a research focus is at an embryonic phase. Wassmer (2010) states that " Through their alliance portfolios, firms essentially gain two distinct types of alliance experience: (a) experience in how to manage single alliances and (b) experience in how to manage multiple simultaneous alliances with different partners (p. 161)." The intent of this chapter is to explore the transition and relationship between these two types of experience and capabilities. As a means to explore the relationship between individual alliance relationships and the resulting alliance function; and the management, evolution and benefits of an alliance portfolio, the transition was explored primarily with respondents from Michener (as its Michener's complement of alliances). The candidate is not aware of any related publications exploring this relationship within the healthcare education industry.

An executive at Michener suggested a direction link between the organisational learning associated with the alliance capability and that of the establishment of the alliance portfolio:

> "***I don't think you'd have a portfolio capability if you didn't have the individual one***, cause how are you going to build a portfolio, if you haven't got the corporate wherewithal, or the personal wherewithal to actually build the individual alliances, they won't last. Cause they'll be built on a single deal that will be only as good as the deal last (Executive I, Michener – Part III)."

Thematically, the cumulative experience in individual alliances, through formalisation and organisational learning, promotes the establishment of an alliance portfolio, if only initially from a definitional perspective as "as a focal firm's past as well as ongoing strategic alliances" (Wassmer, 2010). This is to say that while a firm may meet the definition of an alliance portfolio by establishing more than a single alliance relationship, the recognition of the alliance portfolio as a source for complex, interdependent development of dynamic capabilities for the pursuit of strategic objectives and/or a sustainable competitive advantage is a more sophisticated, developed approach, supported through long-term organisational learning and experience with multiple strategic alliances.

An additional theoretical insight relates to the developmental direction of the alliance capability in regards to the alliance portfolio. While the long-term experience and organisational learning are critical to the establishment of a strategic alliance portfolio, interestingly the engagement of the alliance portfolio can also produce new individual alliance agreements. For example, an executive at Michener summarises this insight:

> "And just as I thought about that, the ancillary discovery, in this portfolio management approach to alliances which goes back to some of these additional… if we hadn't gone down this track, we would never had been introduced to organisations like B.I. who we also have an alliance with....(Executive I, Michener – Part III)"

This insight corroborates past literature within different industrial contexts, insofar as the establishment of an alliance capability and related alliance portfolio capability act as a "proof of concept" and value-proposition and validation mechanism for future alliance partners (Kale et. al., 2002). Kale et. al. (2002) also suggest that the establishment of an alliance portfolio capability is aligned to the cumulative value of multiple alliances to the hub-firm, as well as the sheer number of alliances, insofar as there is a tipping point where the management of multiple alliance relationships becomes a necessity. This experience is illustrated in exploring the relationship between the organisational alliance capability and the capability of the alliance portfolio, whereby an executive at Michener stated "I would argue we would not have been as successful at the collective level if we had not progressed as far as we did along the continuum in the individual level." This comment suggests that the central themes of organisational learning, and the

incorporation of such learning and experience into a specific alliance capability have a direct impact and contribution to the establishment of an organisational capability related to the alliance portfolio.

The respondent data illustrated above suggests that the relationship between the alliance capability and alliance portfolio capability is not unidirectional. While the experience, learning and capabilities from individual alliances help support the establishment, development and cultivation of the alliance portfolio capability, the evolving alliance portfolio capability impacts current and future dyadic alliance relationships through new management approaches and partner selection/opportunities, respectively. While the development of an alliance portfolio capability seems reliant on the development of an alliance capability, once established the relationship between the two capabilities seem to re-enforce and cultivate each other. This insight contributes and advances the understanding of the role of the alliance capability and the establishment of the alliance portfolio (Wassmer, 2010).

16.5.3 The Alliance Portfolio – Benefits, Management & Evolution

While there is a well-established literature base associated with specific alliance relationships, the exploration of alliance portfolios is embryonic in its development (Wassmer, 2010).The proceeding section will explore themes related to the alliance portfolio, including the benefits of engagement, management and evolution of such a phenomenon. Before proceeding, it is important to specify the change in focus in the level of analysis (House et. al., 1995). In preceding chapters, the level of analysis has been identified as the alliance (dyadic) relationship, the firm, and/or specific capabilities. Unless otherwise specified, the level of analysis for this section is (Michener's) alliance portfolio itself (as illustrated by Figure 13). Respondents were informed of this shift in levels of analysis, with specific questions designed accordingly (e.g. To establish dynamic capability, who should Michener attract to it's alliance portfolio? How should Michener's alliance portfolio evolve within the context of the healthcare community/industry? What have been the costs/benefits in engaging within this alliance portfolio?; etc.). The unit, or focus of analysis remains unchanged as the pursuit of establishing dynamic capabilities of innovation/commercialisation between/within inter-organisational relationships. The exploration in the role of an alliance capability to the alliance portfolio, and the associated evolution, management and benefits of such engagement will be explored, largely through the contributions

from respondents within Michener itself. The candidate is not aware of any related publications exploring this relationship within the healthcare or healthcare education industry.

In a comprehensive review of the existing alliance portfolio literature base, Wassmer (2010) outlines three distinct themes of existing and future research, including the emergence, configuration and management of alliance portfolios. Given the necessary scope of this research program, the candidate does not intend to explore the emergence of the alliance portfolio in significant detail, if only to confirm that the original scope in the preceding chapters remains, insofar as the emergence of the alliance portfolio is in pursuit in the establishment and development of dynamic capabilities between firms, with the alliance portfolio acting as an expanded opportunity to pursue this aim. Rather, the focus of this section will explore the general themes of management and configuration of the alliance portfolio, with specific focus on the management, benefits and evolution of the alliance portfolio. From a contribution perspective, given the emerging state of the literature, the candidate intends to provide new insights to existing literature gaps, within the specific context of the healthcare educational industry, and within the dominant theoretical paradigm of dynamic capabilities. The application of these specific insights into a dominant theoretical model/framework would likely be premature and/or presumptuous.

16.5.4 Michener's Alliance Portfolio

As discussed in preceding chapters, Michener has established a well-established alliance portfolio. Historically, Michener has simultaneously managed alliances in distinct categories, including clinical partners; academic partners; and private-industry partners. A Michener executive described the genesis of the clinical alliance portfolio in the following representative comment:

> "I think the other, on the basis of our model, since it is based on didactic and clinical, has required us to build a series of partnership in networks of education which currently at about 150 plus organisations predominately in Ontario but in literally every province of Canada. That allows us to have an outreach of ***networking capabilities*** that is quite unique in terms of post-secondary education institutes (Executive I, Michener – Part I)."

The respondent illustrates a series of insights related to the establishment of the clinical alliance portfolio. First, the respondent confirms that such a model was critical in supporting the core healthcare educational model operated at Michener, as a means to complement the didactic educational with clinical experience; thus, a support of Michener's core business. Secondly, the respondent suggests that such a network not only supports Michener's core organisational strategy, but also acts as a method of potential sustainable competitive advantage, insofar as the extent of the outreach/networking capability is "unique" (i.e. "VRIN"; Barney, 1991). In terms of exploring the genesis of an alliance portfolio, this is a critical insight, as this sub-portfolio (clinical partners) represents the first generation of the alliance "portfolio". Subsequent sub-portfolios, such as academic partners, private-industry partners, and international partners were established thereafter. The roots and alignment of all subsequent sub-portfolios, including the private-industry sub-portfolio (the focus of this specific research program), have been in alignment to the core academic core business of Michener.

The diagram below illustrates Michener's alliance portfolio (figure adapted from Roberts and Wallace, 2004)[10]:

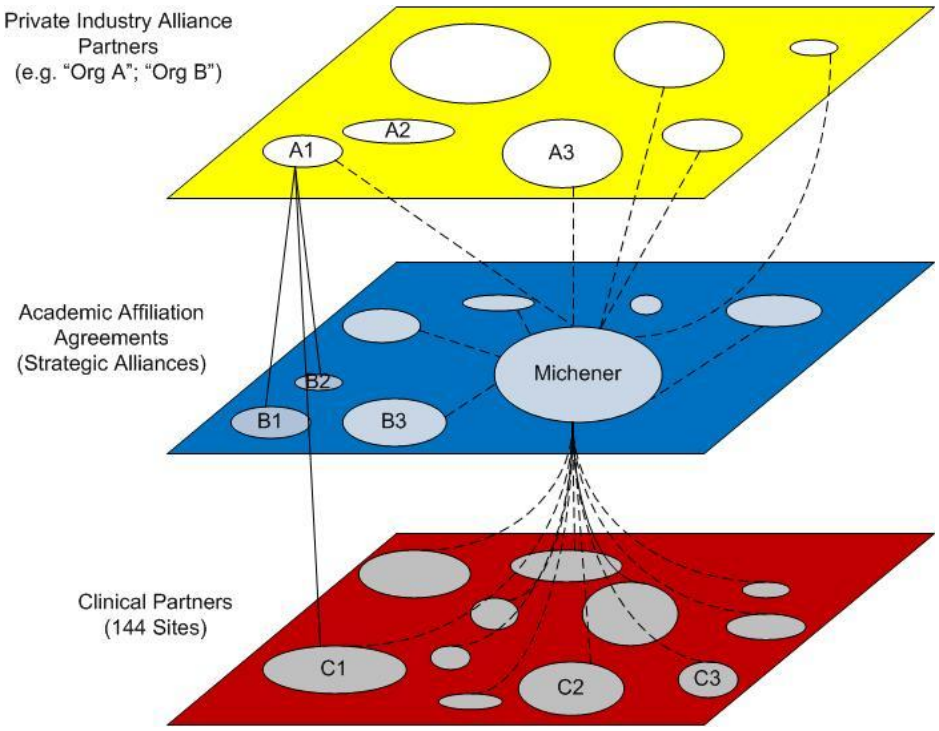

Figure 13: Michener's Alliance Portfolio (figure adapted from Roberts and Wallace, 2004)

[10] A special thanks to Shahid H. for his technical assistance with this image.

16.5.5 Alliance Portfolio Capability

The proceeding sections have explored the specific role of the alliance capability in establishing an alliance portfolio capability; as well as the genesis of an alliance portfolio in support of the organisations core business and organisational strategy. The purpose of this chapter is to explore the specifics of the alliance portfolio capability at the organisational level, and specifically as a means to establish and cultivate dynamic capabilities in innovation and commercialisation. The intended scope of this research focus is aided by the current literature, which heavily leverages both the RBV (Barney, 1991) and dynamic capabilities theoretical lens within alliance portfolios (Wassmer, 2010).

In exploring the cultivation process in establishing an alliance portfolio capability, and executive at Michener suggested:

> "I think ***it (alliance portfolio capability)*** has to be an integrated, integral part of the corporate response strategy. You can't do this, you might be successful on one as an example, but you can't do this as a one off. I think you have to build it into it, and figure out that it has priority, it has resources, it has support, as it goes forward. I think another key piece of this is because ultimately moving it from the individual to the ***portfolio***, as we already discussed, means you have to have the individual way beyond the initial level, you have to be into a deep relationship level. You have to have the key people doing this. And they have to be here for a while. This isn't something that a two year tenure rotation, it wouldn't work cause relationships are longer than that. I think part of the reasons that we've been successful, is that we have had the longevity of commitment to this by individuals (Executive I, Michener – Part III)."

From a theoretical perspective, the above comment provides a series of valuable insights. The respondent suggests that the alliance portfolio capability is centrally focused to the core business of the organisation, and is not peripheral in its strategic contribution, design or intent. Secondly, the respondent confirms the role of personal relationships in achieving portfolio success, referencing the importance of leadership tenure and commitment required to succeed in this portfolio capability. Additionally, to be successful in the long-term, the respondent suggests establishing a formalised, dedicated alliance capability function, resourced appropriately, with senior leaders who

have the appropriate authority and relationship with key portfolio members. This corroborates the findings of Kale et. al. (2002) which explored the fiscal and strategic benefits in establishing a dedicated alliance function within an organisation. From a theoretical development perspective, it is important to clarify the potential difference in establishing a dedicated alliance function/capability, and that of a dedicated alliance portfolio function/capability. While preceding chapters have described the effects and relationship between the two capabilities, the candidate asserts that they are in fact separate and distinct capabilities, with the establishment of one (alliance capability) not necessarily leading to the accomplishment in the other (alliance portfolio capability). Finally, there is a subtle yet important distinction in the interpretation of what an 'alliance portfolio capability' entails. Existing research suggests that firms who simultaneously manage multiple alliances are engaging in this capability (Arndt, 2008; Wassmer, 2010). The response above however suggests a deeper application and definition of the alliance portfolio capability. In practice, as the respondent identifies in the above response, the capability goes beyond the traditional RBV and dynamic capability literature where a firm assesses the resources and capabilities within its alliance portfolio and deems appropriate action thereafter (whether that pursuit is the establishment of a new alliance relationship; the pursuit in developing/advancing a dynamic capability; or pursuit of a market opportunity; access of a specific external resource/capability). In identifying the alliance portfolio as a "corporate response strategy", in practice, the alliance portfolio becomes a sophisticated means by which new market and learning opportunities (innovation, commercialisation) can be pursued that otherwise might not be feasible. Rather than engaging the alliance portfolio to achieve specific hub-firm benefits (through access/utilisation of knowledge, capabilities, resources, etc.), the alliance portfolio can be utilised to create clusters (Provan et. al., 2007) via the portfolio to create market opportunities and innovations that disrupt and transform the current market environment (as it relates to all aspects of the established business model, transformations and advances in customer relationships; customer offerings; product/service offerings; distribution approach to products/services; etc.). In other words, the depth and resulting contribution from a specific dynamic capability developed via the alliance portfolio has the potential to enable the hub-firm (and associated partners), to pursue innovative shocks to the competitive environment, rather than simply aiming to compete more effectively/efficiently within the current competitive marketplace.

As an applied example, the case study of Michener's alliance relationship with "Org B" provides some useful insights and clarifications to the above theoretical development and analysis. Michener and "Org B" have been involved in a formal alliance agreement for several years, pursuing many initiatives involving technological solutions within the radiation therapy industry. Michener and "Org B" share many "loose tie" relationships with a series of clinical research partners, industry partners, academic partners, etc. within each others respective alliance portfolios. Traditionally, the OEM (original equipment manufactures) industry (as experienced in a wide variety of health disciplines, such as ultrasound; radiation-therapy; radiation technology; nuclear medicine; advanced imaging; medical laboratory sciences; etc.) have focused on technological innovation and integration as proof of its capability for innovation and problem solving/contribution within healthcare. Education, as part of the value chain, has (largely, but not exclusively) been targeted to the pre-sales and early post-sales timeframes. This is a challenge for many clinical environments as the state of technological sophistication grows, and natural staff turnover is experienced. Adding to this challenge is the consistent innovation of technology and rapid technological advancement, which has led to a gap in the potential of the equipment and the capability of the healthcare professional to utilise the full extent of the solution, throughout the lifecycle of the platform. Within this alliance portfolio, the opportunity exists for "Org B", in collaboration with Michener and other loose tie partners, to fundamentally redesign the value-chain of the OEM towards not only supporting the technological innovation of the capital solutions, but to also establish a "practitioner-integration" with the equipment, through the application of sophisticated, and consistent educational solutions throughout the life-cycle of the equipment. The current capability of innovation between Michener and "Org B" may adapt to this new marketplace (thus, representing a true dynamic capability in innovation), with the goal of maximising the utilisation of the existing equipment, with the purpose of maximising benefits/experience to the patient. New educational solutions (beyond the standard full-time diploma and post-graduate continuing education courses) are being examined to support this collective value-chain, leveraging the core business of Michener (education) and that of "Org B" (design/development of healthcare treatment capital/solutions) to support domestic and international healthcare education needs. The above description illustrates the ability of the alliance portfolio to be used as a mechanism for strategic diagnosis and development, focused on contributing towards societies greatest challenges and needs (e.g. healthcare solutions), and demonstrating

the benefits of corporate shared value (CSV) as described by Porter et. al. (2011) (as represented through the collaboration of public-private firms).

This theoretical contribution resides in the juncture of the theoretical lenses of RBV (Barney, 1991), dynamic capabilities (Wang et. al., 2007), networks (Provan et. al. 2007), alliance portfolios (Arndt, 2008; Wassmer, 2010), industrial design (Porter, 1980) and strategic nets (Aarikka-Stenroos and Sandberg, 2007) to illustrate the potential of alliance portfolios to act as a strategic response and design mechanism for firms operating within highly volatile and competitive environments. This represents a significant departure and advancement from the standard literature base, insofar as when the theoretical lens of RBV and dynamic capabilities are referenced/applied to the alliance portfolio literature, the focus of the analysis is typically to acknowledge the internal benefit/impact to the hub-firm (Kale et. al., 2002; Arndt, 2008). The leveraging of these theoretical perspectives together, with the empirical data collected within this research program suggest that the benefits of the alliance portfolio (and the resulting dynamic capabilities established therein) have the potential to provide both internal benefits/value to the hub-firm (and alliance participants), as well as external benefits/value to the industrial environment and society at large (Porter et. al., 2011).

In respect to this application of the alliance portfolio, an executive respondent from Michener commented that in terms of the strategic response and deign perspective, as an organisation:

> "We're not 100% there, ok, cause I still think ***its (alliance portfolio)*** a learning curve that we're on, but we're a long way from initiation in this thing because we have, and I look back at as we have, trying to explain this, and what, the value chain you put together several years ago, about how we approached an alliance, and it was pretty much theoretical what was there, but in fact we now have a proven model that we have confidence in, and how to approach an alliance. Its not something we're afraid to do (Executive I, Michener – Part III)…"

The respondent acknowledges the learning process and investiture required to succeed in the alliance portfolio capability, referencing intermediate steps (alliance partner selection through evaluation to organisational value chain) and long-term timeframe (several years). The respondent also illustrates the transition from a theoretical

application of the alliance portfolio capability to an established approach, and the inherent confidence in such an approach. Further to this response, in elaboration of the alliance portfolio as a powerful strategic design and diagnostic mechanism, an executive at Michener stated:

> "I'm not sure it's at the point yet where it's a diagnostic in that sense. I have a feeling that with the continued progression, it may become a diagnostic, I think it's too early for that. I think right now it was this is an opportunistic response, and again, because of where we are with the personal relationship with "Org B", its kind of like they're at the point oh shoot, we have a problem, maybe these guys can help us. As apposed to saying one of the benefits of our alliances is that we will routinely look at and diagnose whether there is an opportunity for these guys to help us, I don't think we're there yet. And again, I think it's a piece of building (the) relationship where opportunistically they came, they had a problem, we came up with a response, and now we're moving, we've moved forward to deliver that. That's going to give them much greater confidence to probably come to us earlier in the diagnostic sequence and say, maybe in the future it becomes part of their bidding, that we have the capacity to bring in the curricular and educational where with all that we can do A,B,C,D (Executive I, Michener – Part III)."

The respondent suggests that while the opportunity exists for the alliance portfolio to mature to this stage of potential contribution, the portfolio in its current state acts in the traditional RBV and dynamic capability sense, whereby problems are solved through the utilisation of alliance partners and related configurations.

As demonstrated throughout this research program in exploring alliance function and alliance portfolio, the concept of strategic focus, and more specifically creating alliances with firms versed within the hub-firm's core business industrial context is an important contributor to success both in general alliance relationships and in the specific pursuit of establishing dynamic capabilities. This theme is extended to the alliance portfolio unit of analysis, with an executive at Michener stating:

> "Most these companies (in the alliance portfolio) are healthcare based, so they know how the funding works, how things occur in hospitals and in education,

> and the benefit it can offer, they have a much better grasp of this whereas I think companies like "Org A" who work mainly with commercial, they only not so much not for profits, they have a harder time with it. So I think these different dynamics come into play, like dealing with "Org B", limited funds, but the benefit is there down the road (Executive I, Michener – Part III)."

As identified in the above comment, the establishment of an alliance portfolio and the resulting portfolio capability should aim to support and advance the core business of the organisation, and ultimately provide benefit and value.

16.5.6 Management of the Alliance Portfolio Capability

Before proceeding to the next section, which explores the costs and benefits in establishing and engaging in an alliance portfolio, the management of such an alliance portfolio will first be explored. In regards to the management of the alliance function, Kale et. al. (2002) state that "Alliance knowledge that resides experientially with individual managers is likely to dissipate over time in the face of natural turnover among them. By codifying this know-how and by absorbing it, the alliance function plays an important role in retaining the knowledge that otherwise might be lost if managers that possess it were to leave the organisation (p. 751)." Within this lens, the candidate intended to explore whether this relationship would remain consistent when applied to the management of the alliance portfolio. The theme offered by Kale et. al. (2002) above was consistently re-enforced by respondents, with a Program Chair at Michener providing a representative comment:

> "I think ***it (management of the alliance portfolio)*** does need to be centrally managed, absolutely. Absolutely, because in order to meet that level on consistency so that you don't as people change and move, there has to be some envelop or body of knowledge, whether its individual or whether its a manual, whatever the mechanism is so that it if somebody new does come in or whatever, there's something that can be picked up to say, oh, this is what, this is what we need, this is sort of what we've got, this is how it evolved, this is what the relationships are, this is what we need to do. And its a little bit different for this person or this group over here because its a bit of a different niche, or whatever, its so you need to know so, yeah (Program Chair I, Michener)."

The respondent identifies a series of core themes, including the requirement for the function to be "centrally managed", which leads to "consistency" and sustainability of the portfolio should key personnel leave the organisation. The respondent also references a critical theme of the existing literature pertaining to the management of the individual alliance function, insofar as the benefit in doing so captures (at a minimum) the explicit and potentially some of the tacit knowledge related to the alliance portfolio (Kale et. al., 2002). In elaborating on the nature of such a centrally managed alliance portfolio function, respondents included requirements such as "transparent"; "accessible"; and "understanding". In terms of a "distributed alliance portfolio function", a director from Michener offered the following recommendation as a means to centrally manage but leverage full organisational awareness and participation as a means to effectively manage/cultivate the alliance portfolio:

> "And the how. The how, because if I understand how it goes, I think a lot of people understand why we have these alliances, cause they see the end product, but its the how, because if I know what's involved, you don't know, I might know the VP of somebody, right, then I can start in a casual conversation, oh, I never really thought of it this way, there's an opportunity. Not that I have to do anything more of the work, because I understand it, I see more opportunities as a result of it. I can bring it to you then cause I already understand and know, that this may or may not work out, but I understand (Sr. Director III, Michener)."

The respondent suggests an innovative approach to managing the alliance portfolio function. While the established literature suggests formalising an alliance function for individual alliances, including the establishment of alliance offices and/or roles (Arndt, 2008; Kale et. al., 2002), the management of a large, loosely tied alliance portfolio may require more of a hybrid approach, whereby collective organisational awareness and knowledge of the alliance portfolio is aligned and integrated to the dedicated alliance portfolio function as a means to maximise portfolio management and value. This is an important distinction from the existing theoretical base, insofar as the application and approach has been adapted from the alliance function literature to new insights and understanding related to the alliance portfolio function.

The engagement and accessing of knowledge and relationships (as described above in the two-proceeding respondent quotes) within an organisation as a means to develop

dynamic capability through 'transactive memory systems', or "the knowledge of 'who knows what' (p. 1376)" reflects the recent micro-foundations insights posited by Argote and Ren (2012).

Wassmer (2010) identified that "although the extant of the literature has mainly focused on understanding single alliance management capability, research addressing the issue of alliance portfolio management capability has only recently started to accumulate (p. 160)." The above theoretical development and subsequent contribution supports the theoretical understanding related to two central gaps within the existing literature, namely the role of the alliance function in the establishment of an alliance portfolio capability, and the potential impact of the alliance portfolio capability beyond the traditional understanding of the RBV and dynamic capability literature (e.g. alliance portfolio as a strategic diagnostic mechanism, leading to potential reconfiguration/transformation of dominant industrial business model).

16.5.7 Benefits in Engaging in Alliance Portfolio

As a future research opportunity, Wassmer (2010) identified that "future alliance portfolio configuration research should shed more light on the costs and benefits associated with different types of alliance portfolio configurations (p. 165)"; "through the exploration and assessment of the perceptions of senior managers, directors, and executives." In contribution towards this focus, throughout the data collection process, through a series of unstructured interviews, respondents were requested to elaborate and clarify the core benefits associated with Michener's alliance portfolio. The responses were varied, with core benefits including (in order of frequency):

- Acquisition/installation of capital/equipment
- Increased innovative capability
- Increased educational/curricular experience for students
- Increased knowledge base/organisational learning
- Increased strategic options
- Increased access to financing
- Increased access to market knowledge/intelligence
- Increased strategic awareness
- Increased (applied) research opportunities
- Innovative creative academic progression

The above insights reflect what Wassmer (2010) identified as central benefits of alliance portfolio engagement in other industries, stating that "looking at the role of alliance partners from a resource and capabilities perspective can reveal new insights on how variation in firm's alliance partners affects the benefits they derive from their alliance portfolios (p. 154)." The majority of private partner firms in Michener's alliance portfolio are original equipment manufacturers (OEMs); who are responsible for the design and development of equipment used in a variety of applied health disciplines, or alternatively in the equipment utilised in the educational approach to those applied health science disciplines. An executive summarised the equipment complement acquired to-date through the engagement of this alliance portfolio:

> "The capital equipment, we have had, we have CT scanner, we've got 2 liner accelerators, we have a Vertual simulator, we have a heart and lung machine, … we have all kinds of physical capital equipment through these partnerships that we would have not have procured because we have no capital funding. So that's one that came out of it. Even with the "Org A", we still have "Org A" simulators downstairs that are at our disposal if we wanted to use them, and there are capital equipment that came out of it including the (Audio Visual Solution) (Executive I, Michener – Part III)."

The above comment confirms the specific capital acquired from the engagement of the alliance portfolio, valued within the several to tens of millions of dollars in asset replacement value, without a dedicated capital funding commitment. The respondent also references the alliance relationship with "Org A", while disappointing in terms of establishing capabilities within innovation and commercialisation, has resulted in a "spill-over" benefit of innovative capital equipment remaining at Michener's campus for potential future incorporation into the curriculum.

Respondents also referenced the pursuit of establishing a dynamic capability of innovation both directly (increased innovative capacity/capability), and indirectly (Increased knowledge base/organisational learning; Increased strategic options; Increased access to financing; Increased access to market knowledge/intelligence; Increased strategic awareness; Increased (applied) research opportunities; Innovative creative academic progression) via engagement of the alliance portfolio. While the acquisition of equipment and establishment and cultivation of dynamic capabilities in

innovation are significant benefits, given the core business of Michener is the education of professions for the applied health sciences industry the collective benefit to the student learning experience and quality of curricular experiences is of highest importance.

A senior Director at Michener summarised this theme in stating:

> "Educating students in the healthcare field. Gives us access to machines that we would not have access to, all these devices are extremely expensive, and keeping up with the latest technology is a very expensive endeavour, being able to make these partnerships with private companies such as "Org B", BMD (bone mineral density) unit, these types of donations or collaboration gets access or grants access to students on the latest technology, so that when they do go into the hospital, they don't have to relearn everything, they've seen it before, and they've been exposed to tools which are the latest and greatest, which again could benefit the hospital as well, because then they may end up not have these latest tools, and they could say I was at Michener, we're able to do A,B and C…so its kind of beneficial for hospitals as well (Director I, Michener – Part II)."

Of central importance is the reference to the impact to student learning, the quality of the academic experience, and the impact to the clinical environment, which was a central directive from Michener's Clinical Partners and Board of Governors (clinical relevance and quality curricular experiences being the underlying motivation for this pursuit), ultimately leading to the pursuit of individual alliances. The above comment also illustrates the degree of innovation from a single alliance to the academic environment, and to the alliance portfolio. For example, as a means to provide an innovative curricular experience Michener establishes an alliance with "Org B" to pursue the design, development and installation of a unique linear accelerator. The establishment of a dynamic capability in innovation is established between the respective organisations leading to the completion and installation of a unique linear accelerator. The unique linear accelerator is integrated into the curriculum (both didactic and lab environments), whereby students and faculty have the opportunity to explore, learn and test the limits and applications of the equipment. This organisational and student learning is distributed both internally to Michener, and externally to Michener's clinical partners through the students clinical rotation and post-graduation/certification

employment. The feedback of this learning continues, through clinical education engagement sessions, liaison officers, etc. This process of innovation is cyclical within the community, involving students, faculty, support staff, clinical partners, industry ("Org B"), representing the very definition of a dynamic capability of innovation.

The majority of Michener's respondents suggested that the continued engagement of its private partner alliance portfolio, and the full engagement of all its alliance portfolios is critical to the advancement of Michener's long-term strategy, stewardship and linkage goals. From a theoretical perspective, success at the level of the alliance portfolio begets future success and cultivation of specific dynamic capabilities. It also illustrates the critical importance in achieving the factors that contribute towards alliance success (establishment of trust; strategic fit of resources; appropriate resource applications; personal commitment; community engagement process throughout implementation; dedicated alliance function {Kale et. al. 2002}); and to limit and reduce the mitigating factors of success (lofty expectations; fuzzy decision making; lack/loss of strategic focus; difference in corporate cultures; etc.). The above example illustrates that where an organisation has established an alliance portfolio, the outcome of individual alliances (development of new capabilities and acquisition of equipment; or alternatively, disappointment and disillusionment) has a significant affect on the current and future value, capabilities and opportunities of the alliance portfolio. As Arndt (2008) states, "Alliance portfolio benefits have the potential to be more valuable than the accumulation of the single alliances (p. 36)." While the above analysis corroborates this statement, the opposite is also relevant, insofar as the risks and costs of the alliance portfolio could also be greater than the accumulation of individual alliances.

In regards to potential risks/costs associated with engaging in an alliance portfolio, respondents identified:

- Potential loss of academic integrity
- Organisational Autonomy
- Balance of allocating best resources (people) to alliance portfolio capability to succeed in subsequent capabilities (innovation/commercialisation)
- Relationship cost(s)

From a theoretical application perspective, the establishment of a dedicated alliance function and subsequent alliance portfolio function, in the context of strong

organisational governance and professional behaviour/ethics policies would likely be appropriate in mitigating the first two risks. The third bullet, representing a strategic management capability, is essential for long-term success and has been developed at length in the preceding sections/chapters. The theme of the relationship costs represents the fact that in order to keep individual alliances and multiple alliance relationships within the alliance portfolio effective, it takes time, resources, effort and intentional focus, representing a direct resource costs and opportunity cost.

16.5.8 Alliance Portfolio Configuration - Evolution

Wassmer (2010) states "Little is still known on how alliance portfolio configurations change over time and what drives this evolution (p. 166)." Within the context of Michener's alliance portfolio, respondents through unstructured interviews were requested to reflect on how the current alliance portfolio might evolve; as well as the types of alliance partners Michener may look to recruit within the medium to long-term. Respondents suggested a variety of factors that would drive the evolution, which generally relate to the current and evolving core business of Michener; and attracting new partners that:

- share our vision, values; strategic direction (excellence in education of applied health science professionals);
- support student learning and quality curriculum;
- support, cultivate and grow clinical, academic, international, industry and government partners;
- strengthen our performance in the marketplace;
- provide access to new market opportunities (e.g. home healthcare models);
- fill a gap, fill a need in our/their value chain;
- meet joint needs amongst partners;
- can co-develop new capabilities (e.g. distributive learning; extending longevity of capital equipment base);
- provide long-term development (growth) opportunities; and
- can influence in different capacities.

A Director from Michener provides a summary response:

> "I guess partners that share our vision of course, of supporting students and bringing in the best technology and the best curriculum, best experience, best education, that they can have at Michener, They would have to see that benefit as well, along with benefits to their own company, if there was a way we could collaborate more closely as opposed to their open to us saying helping developing a product, would they give us some beta version or some piece of medical equipment that could be tested here because we're not going to (harm) any patients. And if we're able to provide them with feedback, and if the students can see that aspect as well, and even just make them feel part of development of some kind of tools, so that when they go into the hospital environments, they look and say I've worked on this 6 months ago. Brings them ahead of the curve, cause at that point they're playing with technology that hasn't been sent out to the public just yet, not been made available. So partners that look to us for information as well I think for collaboration would be beneficial (Director I, Michener – Part II)."

The respondent suggests that future alliance partners should continue to support the core business of Michener, education within the applied health sciences, through providing students innovative technology and solutions. In turn, the continued focus on cultivating the organisational dynamic capability in innovation is referenced, through the recommendation that Michener continue to act as a beta (or alpha) site whereby new and emerging technological advances in healthcare are integrated into the healthcare education curriculum, to be experienced and leveraged within the clinical environment. Michener has a unique ability to act in this capacity insofar as no live patients are treated at Michener's facilities; a variety of "phantoms" and patient simulators are leveraged to establish the required professional capabilities. The respondent also references the critical function of the alliance portfolio, which is to advance both the capabilities and value created by the hub-firm (Michener), and also to secure benefits for those partner firms. The cycling back of the application of new healthcare technology back to the OEMs, together with the capability development of healthcare professions for the clinical setting, offers benefits to both alliance partners and the healthcare system itself.

Many of the themes above provided by managers/executives suggest a portfolio evolution driven by two major phenomena. The first is that the alliance portfolio must

initially support the core business of the hub-firm, and adapt/evolve in tandem as the vision, values and strategy of the hub-firm evolve in order to remain relevant and to cultivate the related dynamic capabilities of innovation and commercialisation. Secondly, the comments and themes illustrated above suggest the evolution of the structure of the alliance portfolio itself. Where historically Michener's alliance portfolio has included formalised sub-portfolios of clinical, academic and industry alliance partners, it is likely that this evolution will increase the quantity of formalised sub-portfolios to include those collective alliances in government, international development, community relations; etc. Lastly, beyond the incremental evolution of a firm's strategy, as discussed in preceding chapters, the ability of the alliance portfolio to act as a strategic diagnosis and response mechanism to shifts/shocks in the competitive marketplace is a realisation that firms increasingly strive to capitalise on, as is illustrated in the case study involving Michener and "Org B."

Finally, in order to maximise the value of Michener's alliance portfolio, part of the evolution must ensure reciprocity in the value received by all portfolio participants. A Michener executive summarised this theme in the following representative comment:

> "I think ***its (alliance portfolio)*** all those things (the value that drive that value, is it need, capital need, value chain, our capabilities, or lack thereof, access to markets), but I think interestingly enough, the future robustness of the ***portfolio***, and the success and contribution of the ***portfolio***, while that I would argue in this evolutionary phase, this development phase of building that ***portfolio***, we have been the driver of this for our purposes, for our outcomes. I think for it to move to that next level, it may well be the leveraging of those alliance partners to fulfil the capacity of their equipment, of their issues (Executive I, Michener – Part III)."

The theme identified above aligns to the results developed in the opening chapter examining the factors that contribute towards success at the individual alliance level. Within this context, an executive at Michener stated, "I think a strategic alliance cannot work unless both parties are willing to sacrifice something. At some point, in the relationship, somebody has to sacrifice something for the benefit of the other (Executive II, Michener)." The above comment suggests from theory development perspective that the same relationship could also apply in the evolution of the alliance portfolio capability.

16.5.9 Summary

In leveraging the unit of analysis of the alliance portfolio, the above chapter provides insights to the establishment, evolution and management of the alliance portfolio within the healthcare education industry, in the pursuit of establishing dynamic capabilities in innovation and commercialisation. Unlike the preceding chapters, this chapter is unique in its theoretical contributions, given the embryonic development phase of the literature, rather than providing new clarifications, adaptations and/or advancements to existing theoretical concepts and related literature gaps, the insights and results of this chapter contribute to the early development and evolution pertaining to alliance portfolios in general.

CHAPTER 17 - CONCLUSIONS

17.1 INTRODUCTION

The focus of this research program stemmed from a detailed review of the strategic management literature. The emergence of dynamic capabilities as a means of explaining both strategic change and competitive advantage has been profound. However, the detailed review presented earlier in this thesis suggests that there is a gap in our understanding of dynamic capabilities in the particular context of inter-organisational settings. To effectively summarise the core contributions of this research program, the foundational Research Aim was "To explore and examine the role of a firm's alliance portfolio in the development of dynamic capabilities of innovation and commercialisation." To advance this Research Aim, the following Research Questions were identified:

Research Questions:

i) What role do alliance portfolios play in the development of dynamic capabilities within healthcare firms?
ii) Do any resulting dynamic capabilities reside within and/or between firms?

To specifically address the research questions, this chapter begins by providing an executive summary response of the major findings relating to these research questions (titled Summary Finding #1, #2, respectively). Then, based on these findings, the thesis offers specific contributions to the extant literature on dynamic capabilities and returns to the overall Research Objectives of the research program as outlined in Chapter 7 - Research Questions, Aims & Objectives.

17.2 SUMMARY FINDING FOR RQ#1: RELATIONSHIPS AND TRANSFER

In the case studies examined throughout this research program, an organisation's engagement of its alliance portfolio enables the opportunity to significantly contribute towards the development of dynamic capabilities (of innovation and commercialisation). The way, in which this occurs, as demonstrated through Figure 11 above, is indirect and systemic. It is indirect insofar as enabling and mitigating variables

impact the ability to create trust, effective resource allocations, and strategic fit within the alliance environment. An executive from "Org B" illustrates the cumulative impact of these factors in positing:

> "I think so, I mean I think at Michener I don't think of the linacs anymore. I think of partnerships and innovation, coming hand in hand with you to enter emerging markets and help us with Ontario. So, I think we have a lot more growth we could do together. And its not about machines, its about people and experience education. The whole thing is linked to service contracts, and collaboratively working with others, a few other partners in Ontario. I think all the individuals are personally capital in this (Sr. Executive, "Org B")."

The ability of managers/executives/practitioners within alliances to limit the mitigating factors, and cultivate the enabling factors (as illustrated in Figure 11) form the basis whereby trust, resource allocation and strategic fit can be established. The resulting creation of new dynamic capabilities, which they attribute to the alliance rather than their own individual firm, enable new business models and growth opportunities that otherwise would not be possible within the confines of the firm's egocentric resource/capability base/complement. This phenomenon, of the rich interplay by the manager of internal/external resources, abilities and growth opportunities is observed by Augier and Teece (2009, p. 418) stating:

> "The manager/entrepreneur can bargain, negotiate, and buy or sell or swap investments/assets, orchestrate internal assets (intrapreneurship), transact with the owners of external assets (entrepreneurship), and design and implement new "business models," which define the architecture of new businesses (Chesbrough and Rosenbloom 2002, as cited by Augier and Teece). The astute performance of these functions will help achieve what Porter (1996, as cited by Augier and Teece) calls "strategic fit," not just with internally controlled assets, but with the assets of alliance partners."

Further, within the context of this research program, this phenomenon is illustrated in the following description from a Michener executive:

> "It's (alliance capability in establishing dynamic capabilities in innovation/commercialisation) absolutely important, I think its essential, that's why I was pausing. And I think the link to essential is I don't think we would be in the mindset of creativity and innovation that we are if it weren't for the alliance issues. I think going back to what are the key things necessary for the portfolio management, what we have now; we have a confidence in this approach and this rationale. And so we're willing to throw challenging problems at that conceptual approach to doing business that I don't think you would do if you didn't have the confidence (Executive I, Michener – Part III)."

This 'alliance experience', as recognised by Arndt (2008), has an effect on the organisational learning capacity, and develops and cultivates a dedicated alliance function (Kale et. al., 2002). As demonstrated through this research program, the cumulative experience of the dedicated alliance function, and the resulting dynamic capabilities established therein, transition to the alliance portfolio. The alliance portfolio not only acts as an egocentric catchment of an organisations respective alliances (Baum, 2000), but also acts as a cumulative set of dynamic capabilities, resources, and opportunities. The critical finding of this research program is that this model is re-enforcing, insofar as the experience and development of an organisations dynamic capabilities through the engagement of the alliance portfolio has a direct role in supporting the firm's internal alliance function (and thus dynamic capability development and cultivation). Additionally, through the research field of the development of dynamic capabilities through alliance portfolios (Arndt, 2008), through organisational learning, the candidate posits and illustrated as a core result the value of alliance experience from dyad relationships to the alliance portfolio need not necessarily be a successful outcome for it to be valuable. In other words, contribution in terms of learning and value (e.g. future capability development; new market entry decisions; market exit decisions; new partner selection within the alliance portfolio) may result from dyad alliance relationships that result not only in successful alliances, but also those in which resulted in (short-term) disappointment.

17.3 SUMMARY FINDING FOR RQ#2

The direct response to this research question as articulated throughout this research program is data from these cases suggest dynamic capabilities developed in alliance situations reside both within and between firms. Although this finding is based on a limited sample in the healthcare sector, it nevertheless draws attention to other contexts by showing that it is at least possible to find dynamic capabilities which reside within individual partner firms and in the relationship between those firms. While the specific nature (Micro-level perspective) of how dynamic capabilities are created amongst and between firms is outside the scope of this research program (this will be reflected in the future research recommendations section), as the alliance relationship progresses and matures, both in terms of time and relationship status, the established dynamic capabilities reside both within and between the respective organisations. Dynamic capabilities, if and once established, can be leveraged for the advancement of the current collaborative initiative, as well as future collaborative initiatives, both within the specific dyad alliance relationship, and outside the original dyad alliance relationship with alternative/future alliance partners (insofar as the alliance portfolio and the alliance function act as a centralised mechanism for dynamic capabilities).

This research program has examined the specific factors and variables related to the establishment of dynamic capabilities amongst firms; how managers interact and perceive this development process; how dynamic capabilities are developed; and where the resulting capabilities reside. The candidate has also explored the relationship between individual alliance agreements, and the transition to an organisations respective alliance portfolio. Finally, the alliance portfolio itself was explored specifically in regards to the management, evolution and overall benefits of such an alliance portfolio. The development of dynamic capabilities via an organisations individual alliances and alliance portfolio core represents the central (applied) strategic management problem addressed in the advancement of these research objectives.

CHAPTER 18 - CONTRIBUTIONS

From a theoretical development and contribution perspective, this research program has aimed to provide further clarification and understanding pertaining to:

18.1 CONTRIBUTION #1 – BROADENING THE ALLIANCE MANAGEMENT TOOLKIT FOR THE DEDICATED ALLIANCE FUNCTION WITHIN ALLIANCES BETWEEN PUBLIC & PRIVATE FIRMS {IN REFERENCE AND ALIGNMENT TO SATISFY THE CONDITIONS OF RESEARCH OBJECTIVE I) & II)}

Kale et. al. (2002) posit that the establishment of a dedicated alliance function has a significant association with overall alliance success and resulting financial return; and suggest a series of phases in which alliances progress and corresponding analysis applications. Within this research program, the examination the perception differences between respondents in both public and private sector organisations of each other, and specific methodologies to mitigate such differing perceptions contribute towards the 'enabling factors' (as illustrated in Figure 11) that contribute towards successful alliance relationships. The core insight that alliance partners may have fundamentally different expectations/perceptions of the alliance relationship has significant implications for all phases of the alliance relationship (including the alliance planning, partner selection, negotiation, management and termination phases as outlined by Kale et. al. (2002)). This insight, coupled with the theoretical development and incorporation of the "myth-busting process/conversation", as utilised within multi-disciplinary healthcare teams (Fleming et. al., 2010) as an effective tool to identify, challenge and clarify misperceptions and myths amongst alliance partners within and between the specific phases of the alliance relationship. This contribution enriches the existing components of the alliance function by suggesting a specific methodology in which inter-industrial organisations can apply to increase the likelihood of alliance success (defined in the context of this research program as the establishment of dynamic capabilities in innovation and commercialisation).

18.2 CONTRIBUTION #2 – EXPANSION OF UNDERSTANDING IN THE ALLIANCE MANAGEMENT FUNCTION AS REFLECTED IN THE DEDICATED ALLIANCE FUNCTION {IN REFERENCE AND ALIGNMENT TO SATISFY THE CONDITIONS OF RESEARCH OBJECTIVE I) & II)}

In examining the factors of long-term alliance success, Whipple et. al. (2000) posit that buyer response; trust; senior management support; the ability to meet performance expectations; clear goals; and partner compatibility as critical. Within this research program, the factors most identified (through respondents from Michener; "Org A"; and "Org B") as being critical to alliance success were trust, transparency, shared value, fit of values and core businesses between the organisations, and clarity of expectations and sacrifice, within the context of a clearly defined desired goal/outcome (defined in this case as the establishment of dynamic capabilities between the alliance partners), as illustrated via Figure 12 {Expansion of Understanding in the Alliance Management Function as Reflected in the Dedicated Alliance Function (Kale et. al., 2002)}.

This conceptual framework (Figure 12) first corroborates the findings of Whipple et. al. (2000) insofar as several key factors of success within the Michener alliance experience (and different industrial context) is either directly illustrated or categorically related. Secondly, the conceptual model builds upon the initial findings of Whipple et. al. (2000) insofar as the model demonstrates the impact of establishing these alliance success factors on the foundation of differentiated relationship states. More specifically, the conceptual model posits that the factors that contribute towards long-term success do not operate within a void context, and the ability to build and transition from a business to a personal relationship, and finally to a personal commitment/investment has a significant impact to the degree of success ultimately achieved.

While the results in this industrial context (healthcare education) corroborate past findings in alternative industries in terms of the factors that contribute toward the successful management/operation of alliances (Whipple et. al., 2000), the development of the above framework makes distinct contributions in:

- Linking the framework to the alliance management process within the dedicated alliance management function (Kale et. al., 2002);
- Suggesting new factors that may contribute towards alliance success in the long-term (e.g. sacrifice); and

- The integration and prominence of the personal commitment, and the subsequent advancement from a business relationship, to the overall probability of success within an alliance relationship.

These insights build upon, extend and consolidate the contributing factors related to alliance success (Whipple et. al., 2000) as reflected in the management of alliances as embedded within the alliance function (Kale et. al. 2002).

18.3 CONTRIBUTION #3 – EXPLORATION OF THE DEVELOPMENT OF DYNAMIC CAPABILITIES BETWEEN FIRMS THROUGH THE ENGAGEMENT OF THE ALLIANCE PORTFOLIO {IN REFERENCE AND ALIGNMENT TO SATISFY THE CONDITIONS OF RESEARCH OBJECTIVE III)}

The major focus of this chapter and resulting contribution is to explore the variables associated with the establishment of dynamic capabilities through the compare/contrast of two distinct case studies (Yin, 2009). Referred to as "Org A" and "Org B" this research program examined the general role, and specific factors of the alliance function in establishing dynamic capabilities (of innovation/commercialisation) between firms (Barney, 1991; Lorenzoni et. al., 1999; Aarikka-Stenroos and Sandberg, 2007). Ultimately, in the case study involving "Org A", where respondents posited the partial success of innovation and failure to establish commercialisation capabilities, the variables (data codes), as represented by the content and intent of the specific and illustrative responses, included "lofty expectations"; "difference between corporate cultures"; "fuzzy decision making"; "lack/loss of strategic focus"; and "transference of capabilities between industries." The identification of these variables (representative data codes) and the compounding and inter-connective relationship between them, extend the contribution of Whipple et. al. (2000), insofar as the case specific variables posit the specific factors that mitigate the ability to establish trust within an alliance relationship. From an applied strategic management perspective, trust, as referenced throughout this research program, is one if not the most dominant factor related to long-term alliance success (Lorenzoni et. al., 1999; Whipple et. al., 2000).

Similarly, in examining the case study with "Org B", the distinct variables (enabling data codes) of "Personal Relationships Subservient to Business Relationship;" and

"Involvement/ Engagement Process As Means to Secure Desired Outcomes" were distinctly identified within the case study associated with "Org B."

The identification of these variables (both mitigating and enabling factors in establishing dynamic capabilities between/amongst firms within an alliance relationship) within the conceptual framework illustrated in Figure 11, provide a unique contribution insofar as the dominant strategic management theories of RBV (Barney, 1991); dynamic capabilities (Wang and Ahmed, 2007) and alliances (Gulati,1998a) are compounded to posit a functional and diagnostic conceptual framework (Figure 11).

This illustration (Figure 11) provides a contribution for future research insofar as the conceptual relationships and specific variables link together several related yet traditionally siloed concepts; additionally, for the management practitioner, the relationship of the mitigating and enabling variables to the ability to establish trust, appropriate resource allocations, and strategic fit within an alliance suggests the role and importance of strategic management. In being aware of these specific variables, management practitioners can aim to cultivate the enabling values, while working to contain and manage those variables that mitigate the establishment of trust, effective resource deployment, and strategic fit, in the aim of establishing dynamic capabilities. In short, as illustrated through this model, strategic management matters. The presence of one or more mitigating variables does not immediately conclude to complete disappointment and disillusionment (represented in this research program as the failure to create dynamic capabilities); rather, the relationship is indirect, insofar as where one or more of these variables are present, they represent a risk to establishing the critical factors of alliance success, such as trust (Whipple et. al., 2000), strategic focus and effective resource application, which themselves have a critical role in establishing dynamic capabilities. The clarity of the indirect, subtle, yet compounded relationship between these variables and theories within strategic management provides a unique contribution for future applied research and management practitioners.

18.4 CONTRIBUTION #4 – THE EXPLORATION OF THE ROLE OF THE ESTABLISHMENT OF AN ALLIANCE CAPABILITY AND THE ALLIANCE PORTFOLIO CAPABILITY, AND THE RESULTING MANAGEMENT & EVOLUTION OF THE ALLIANCE PORTFOLIO {IN REFERENCE AND ALIGNMENT TO SATISFY THE CONDITIONS OF RESEARCH OBJECTIVE IV)}

Inclusive within the comprehensive examination and summary of the literature base pertaining to alliance portfolios, Wassmer (2010) suggested several significant gaps in the current state of literature, including (but not limited to) the management; evolution; and specific costs and benefits of alliance portfolios. This research program explored the distinct nature and specific factors of the alliance portfolio capability through the respondents of staff, managers, directors and executives; the role of the alliance capability in establishing an alliance portfolio capability; the transition process involved therein; and the systematic manner in which the alliance capability and alliance portfolio capability cultivate each other (Kale et. al. 2002; Arndt, 2008; Wassmer, 2010). In doing so, the candidate has made a unique contribution in illustrating the specific variables associated with alliance success (defined as the establishment of dynamic capabilities in innovation/commercialisation) as related to the alliance function (Kale et. al., 2002); the role (and transference) of this subsequent alliance function to the alliance portfolio; and finally the management, evolution and benefits of such involvement. These relationships, as illustrated in Figure 11, provide a clear (if not unintended linear, mechanical), comprehensive relationship model of these often compartmentalised, and yet highly (inter)related concepts.

While the role/relationship of the dedicated alliance function to the alliance portfolio capability has been identified by previous researchers (Kale et. al., 2002; Arndt, 2008), this research program has aimed to explore this transition more deeply, through the responses of management practitioners directly, as a means to extend existing views.

Additionally, given the embryonic state of the alliance portfolio research literature itself, the candidate is not aware of any other related research publications within the healthcare education industry that specifically explore the themes of alliance portfolio management, evolution, and associated benefits as directly or specifically as this research program, thus representing a distinct and unique research contribution.

CHAPTER 19 - GENERALISATIONS

19.1 IMPLICATIONS TO RESEARCH AGENDA & INDUSTRIAL PRACTICE

As markets and industries become increasingly complex and volatile, the role of alliances, and specifically the alliance portfolio, provide organisations an effective mechanism to pursue competitive advantage and shared value (Porter et. al., 2011). The core findings involving the perception differences between inter-industrial alliance partners (Contribution #1) is significant insofar as it suggests a specific mechanism (myth-busting conversation model) whereby management practitioners from a variety of industries apply at various stages throughout the alliance life-cycle to identify and clarify barriers to effectiveness. Similarly, the recognition in the role of personal relationships within the alliance management phase (Kale et. al., 2002), and the factors that contribute towards progression (Contribution #2) would likely be valuable in a variety of inter-industrial alliance relationships.

The contribution examining the process in which firms collaborate to establish new dynamic capabilities in innovation and commercialisation (Contribution #3) would likely be especially valuable/applicable to many organisations involved in post-secondary university, government agencies, and private, for-profit firms involved in societies most complex challenges, identified by Porter and Kramer (2011) and being within the fields of "health; safety; environmental performance; and employee retention and capability." Specifically within the health sector, the pursuit of corporate shared value (CSV) (Porter et. al., 2011) through alliance portfolios would likely be applicable to firms addressing pressing challenges related to patient safety; access to care; quality of care; patient-centre care; innovative models of care (e.g. homecare); medical device manufacturing; original equipment manufactures (OEMs); etc.

Lastly, given the embryonic state of the literature pertaining to alliance portfolios, the contribution exploring the evolution, management, and benefits of engagement of an organisation's respective alliance portfolio (Contribution #4) is applicable for fellow researchers and management practitioners alike. These initial findings and insights provide a direct contribution towards this emerging research field, and provide management practitioners in the applicable industries listed above potential clarity in terms of how, where and why the alliance portfolio may be leveraged to support the

development of dynamic capabilities and subsequently advance an organisations vision and resulting strategies.

19.2 IMPLICATIONS & GENERALISATIONS TO MICHENER MANAGEMENT PRACTICE

This research program and its subsequent findings have had a direct impact on the management practice of individual alliance relationships, as well as the focus, intent and complement of Michener's overall alliance portfolio. In regards to specific dyadic alliances, this research program has clarified and found specific factors (enabling, mitigating) that management practitioners within Michener aim to secure to maximise the likelihood of success within alliances. The clarification of these specific variables has had a direct impact on all phases of the dedicated alliance function (Kale et. al., 2002), and led to more effective decisions within alliances to maximise the resulting value and contribution to Michener, its alliance partners, and the healthcare communities in which it serves.

As a means to cultivate and advance Michener's capabilities within the simulation, home-care and process-driven clinical workflow environments, this research program has already impacted on practice within the organisation by suggesting the exploration of new sub-portfolios (complements of alliance partners) within Michener's current alliance portfolio. Findings from this study are therefore of direct relevance to the ongoing management of Michener's alliance portfolio, and have resulted in changes to the ways in which alliances are approached. Specifically, the study's findings on the critical importance of trust and the achievement of a high personal commitment towards the respective alliance relationship have impacted the approach to new alliance possibilities, placing far greater emphasis on relationship building and expectation management in the early stages of new alliances. As alliances mature beyond the selection and confirmation stage, the focus of management is to ensure decision making procedures are well defined; expected outcomes articulated; and a common culture established within the alliance team. The potential evolution of Michener's alliance portfolio (including the sub-portfolios of international development alliance partners; and other non-profit healthcare entities) has been driven by Michener's overall strategy and pursuit of dynamic capability in support thereof (Wang and Ahmed, 2007).

Similar to the levels of analysis described in the preceding methodology and results chapters, the implications of the research findings/results contained within this research program will impact Michener in several distinct levels (Rousseau and House, 1994;

House, Rousseau, and Thomas-Hunt, 1995). From a macro-perspective, the implications of this research program and its subsequent insights have been valuable as Michener initiates a strategic review of its core academic business of educating students and existing practitioners within the applied health sciences. The engagement of Michener's alliance portfolio (including those alliance partners from the clinical, academic, private-industry, non-profit, and community organisations), has, and will continue to be a critical approach in determining both future priorities, and potential collaborative alliance partners to enable/pursue these resulting priorities. From a micro (intra-organisational, departmental) perspective, the insights and resulting applied frameworks illustrated within this research program will contribute towards the future directions and approaches in how Michener engages its alliance portfolio partners in the development of its Business Development, International Development, and Facility utilisation strategies. Ultimately, from a strategic management perspective the results outlined within this research program, and the application of these findings/results as described throughout this chapter, will contribute towards Michener's vision as 'The leader in Applied Health Science Education through excellence and innovation.'

CHAPTER 20 - LIMITATIONS OF FINDINGS

20.1 – GENERAL LIMITATIONS OF FINDINGS

As is the case in most research programs, the ability to effectively define and pursue a research question requires a series of trade-off decisions leading to an appropriate scope of enquiry.

The candidate recognises several limitations to the scope of understanding in the context of this research program, including:

- The literature base within strategic management dedicated to the concepts of innovation and commercialisation is significant. The candidate purposefully referenced a limited section of the respective literature and chose a preferred definition for the purpose of this research program. As such, the focus of research program should be interpreted (and has been defined as) an examination and exploration of the development of dynamic capabilities (of innovation and commercialisation) within alliance/alliance portfolio environments, rather than an in-depth examination of the innovation/commercialisation processes themselves.
- The choice of case studies ("Org A" and "Org B") resulted from a series of factors, including impact to the organisation; value (both future and historical) to Michener; the state of the current literature base; etc. While perhaps obvious, it is important to recognise that the choice of alternative comparative case studies (Yin, 2009) could potentially lead to different observations/results.
- While the research program corroborated several past insights offered by Whipple et. al.(2000) and Kale et. al. (2002), given the industrial context in which this research program occurred (that of healthcare education, and the associated industries of healthcare simulation/education and medical equipment/solutions development) the results may not be directly/similarly observed in alternative industries.
- While the results and findings of this research program related to alliance portfolios (Wassmer, 2010) are distinct, the fact that the research focus is in its infancy may limit the applicability of these results to alternative environments.

20.2 – RECOGNITION AND MITIGATION OF POTENTIAL CANDIDATE BIAS

While issue of potential bias has been recognised and developed in preceding chapters (Chapter 8 – Research Setting; Chapter 13 – Ethical Review & Considerations; Chapter 14.5 – Test for Data Code Bias), the candidate would be remiss in not addressing this issue within the context and chapter of 'Limitations of Research Findings.'

From a participant-bias perspective, the application of the grounded theory approach (Suddaby, 2006; Corbin and Strauss, 2008) in itself acts as a control for participant bias, insofar as multiple data sources are accessed and ultimately triangulated. Within the context of this research program, archival analysis, participant involvement/observation, and un/semi-structured interviews were employed as data collection methods (Eisenhardt, 1989). As the first method applied, archival analysis (through the examination of alliance and contract documents pertaining to Michener's experience/pursuit of dynamic capability with both Org "A" and "B") provided an objective description of the initial goals, aims, and intent of each alliance relationship. Subsequently, the experiences and perceptions of each interviewee, as well as those experiences and perceptions of the candidate, were in the context of these objective "anchor" references. Interviewees were requested to provide their own perceptions and describe their own experiences of whether the alliance with "Org A" and "Org B" was successful or unsuccessful in the context of these initial Agreement aims, goals and objectives, and accordingly, to offer evidence to these insights.

From a bias-control perspective, Michener has an additional benefit insofar that as a post-secondary academic organisation, the function of applied research (and resulting culture of inquiry) provides an environment where interviewees are accustomed to participating in the general research process on a fairly regular basis. Additionally, in regards to external respondents, in the resulting Letters of Support from "Org A", and "Org B", the candidate sought and was granted permission to contact both "past/current senior/divisional managers involved in the development/operations" of the alliance relationship. The balance of perspectives amongst current and past employees provided an effective means to explore difficult concepts and experiences.

Further, throughout the rich interplay of data collection and analysis, the content management and analysis platform (Nvivo 9) enabled the candidate to leverage the data management and review tools to test and identify key word, concept and theme

associations identified (objectively) from the transcribed interviews. This provided a set of rich and objective relationships between the data that were subsequently explored and clarified through additional interviews.

Lastly, from a data code perspective, the evolution of the data codes proceeded over four distinct phases, as driven by the content and interpretation of the respondent data itself. As a final test, the candidate randomly selected an interview respondent and requested their participation in completing a data-code bias-test (via the methodological approach outlined within Chapter 12 - Data Collection & Analysis: Case Study Protocol). Upon reviewing the data code bias-control process, the respondent reviewed ~11 pages of randomly selected responses, consistently selecting the same data codes as applied as the candidate.

The employment of the multiple methodological techniques outlined above positively mitigated the overall likelihood and impact of participant bias.

CHAPTER 21 - FUTURE RESEARCH ACTIVITIES

While making a contribution within the scope of the research program, the candidate recognises the opportunity for future research opportunities beyond this chosen scope (as related to the current data set and topic area), including:

- Examination of the micro-level experience related to development of dynamic capability between firms (micro-foundations of dynamic capability, specifically via the project management perspective)
- The examination and exploration in the transition between the individual alliance function and that of the alliance portfolio function within other industries as a means of pursuing generalisability of results
- The continued exploration of the evolution, management, benefits of alliance portfolios across multiple industries to broaden the knowledge base of this research field

In alignment to the grounded theory approach (Eisenhardt, 1989; Suddaby, 2006; Corbin and Strauss, 2008) the candidate recognises the achievement of 'saturation' at a particular point in time. The point of saturation achieved with the central concepts and themes outlined within this research program will continue to evolve within the organisation (Michener) in the medium to long-term, suggesting a rich opportunity for a longitudinal study of the management and evolution of the alliance portfolio.

Lastly, while unrelated to this research dissertation, during an interview with a representative from "Org B", it was observed that in the long-term (7-10 years), an engineering research study focused on the effects of treatment radiation on the materials used to build liner accelerators (linacs) would be possible in comparing/contrasting the effects of Michener's KV –beam linac units with those that are MV-beam (clinical) linacs. The similarities in simulated or active workflow would be relatively consistent and may present an interesting and valuable research opportunity for future OEM developments/insights.

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